2026 ALDOT

QCI Refresher Training

Resource Manual

Part 2

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INSPECTION GUIDE

QCI DAILY OBSERVATIONS:

- Record rainfall and weather information.
- Observe each active and disturbed area.
- Look at Stormwater Discharge and Background Points, BMPs, erosion and sediment transport.
- Determine if a Formal Site Inspection is required.

Formal Site Inspection Required (at least one applies)**:**

- ☐ One Week since last inspection.
- ☐ Rainfall ≥ ¾ inch within 24 Hours.
- ☐ Observed NEW Needs Improvement, Turbid Discharge, or Sediment Loss.

QCI SITE INSPECTIONS:

- Record rainfall and weather information.
- Inspect the entire project with the Contractor QCI.
- Look at Stormwater Discharge and Background Points, BMPs, erosion and sediment transport.
- Document Field Conditions (Satisfactory, Needs Improvement, Turbid Discharge, Sediment Loss).
- Include comments about what you observed.
- Take pictures of what you observed.

Assessing Field Conditions:

- **Satisfactory** - no repairs or improvements needed in the drainage area.
  You must be able to check all boxes:
  - ☐ No substantial visible contrast at any discharge point.
  - ☐ No visible evidence of substantial erosion or sediment loss.
  - ☐ All BMPs installed, maintained, repaired, and functioning effectively.
  - ☐ Sediment accumulation upstream of BMPs has not exceeded 1/3 capacity.
- **Needs Improvement** - minor repairs or improvements needed in the drainage area.
  You must be able to check all boxes:
  - ☐ No substantial visible contrast at any discharge point.
  - ☐ No visible evidence of off-site sediment loss.
  - ☐ Possible Observations (at least one applies):
    - ○ Minor on-site erosion.
    - ○ Minor on-site sediment loss.
    - ○ BMPs not installed, installed improperly, need repair or replacement, not functioning.
    - ○ Sediment accumulation upstream of BMPs exceeding 1/3 capacity.
- **Turbid Discharge** - repair or improvements needed in the drainage area.
  - ☐ Possible Observations (at least one applies):
    - ○ Turbid construction stormwater left the ALDOT ROW.
    - ○ Substantial visible contrast at one or more stormwater discharge points.
- **Sediment Loss** - major repair or improvements needed in the drainage area.
  - ☐ Possible Observations (at least one applies):
    - ○ Sediment or soil was transported from the project and deposited in a location off the ALDOT ROW.
    - ○ Sediment or soil was transported from the project and deposited within a water of the state (either within or outside of the ALDOT ROW).

INSPECTION GUIDE
(continued)

INSPECTION REPORTING:

- **Satisfactory:**
  - Enter inspection into the Stormwater Tracking System.
  - Upload pictures with a description into the Stormwater Tracking System.
  - Close report within 48 hours of rainfall event.
  - QCP approve report within 5 days of rainfall event.
  - Give a copy of the report to the Contractor QCI within 15 days of rainfall event.

- **Needs Improvement:**
  - Immediately communicate needed Corrective Actions to the ALDOT Project Manager and the Contractor so that they can be completed within 5 days or before the next storm event.
  - Enter inspection into the Stormwater Tracking System.
  - Upload pictures with a description into the Stormwater Tracking System.
  - Close report within 48 hours of rainfall event.
  - QCP approve report within 5 days of rainfall event.
  - Give a copy of the report to the Contractor QCI within 15 days of rainfall event.
  - Document Corrective Actions progress until all are complete and conditions are Satisfactory.

- **Turbid Discharge:**
  - Immediately communicate needed Corrective Actions to the ALDOT Project Manager and the Contractor so that they can be completed within 5 days or before the next storm event.
  - Enter inspection into the Stormwater Tracking System.
  - Verbal Notification to ADEM within 24 hours of the event.
  - Upload pictures with a description into the Stormwater Tracking System.
  - Claims of Upset Conditions to be verified by the ALDOT Stormwater Coordinator.
  - Close report within 48 hours of rainfall event.
  - QCP approve report within 5 days of rainfall event.
  - Give a copy of the report to the Contractor QCI within 15 days of rainfall event.
  - Document Corrective Actions progress until all are complete and conditions are Satisfactory.

- **Sediment Loss:**
  - Immediately communicate needed Corrective Actions to the ALDOT Stormwater Coordinator, the ALDOT Project Manager, and the Contractor so that they can be completed within 5 days or before the next storm event (or per the Corrective Actions schedule).
  - Verbal Notification to ADEM within 24 hours of the event.
  - Written Report to ADEM within 5 days of the event.
  - Enter inspection into the Stormwater Tracking System.
  - Upload pictures with a description into the Stormwater Tracking System.
  - Claims of Upset Conditions to be verified by the ALDOT Stormwater Coordinator.
  - Include a Corrective Actions schedule if they cannot be completed within 5 days.
  - Close report within 48 hours of rainfall event.
  - QCP approve report within 5 days of rainfall event.
  - Give a copy of the report to the Contractor QCI within 15 days of rainfall event.
  - Document Corrective Actions progress until all are complete and conditions are Satisfactory.

Form C-34 (Field Worksheet)
Revised 10/15

Alabama Department of Transportation
Stormwater Inspection Report and BMP Certification

Permit Sequence Number: _____ Contractor QCI Present: _____

Project Number: _____ Weather: _____

Inspection Number: _____ Site Discharging: _____

Inspection Date: _____ Stormwater Sampled: _____ (Use Form C-38)

Inspection Type: _____ Rain Gauge (in): _____

Rainfall Date: _____

Did discharges of sediment or other pollutants occur from the site? _____

Were BMPs properly implemented and maintained at the time of inspection? _____

Are BMPs needed in addition to those already present onsite at the time of inspection? _____

Have any BMPs failed to operate as designed? _____

Were there BMPs required by the CBMPP that were not installed or installed in a manner not consistent with the CBMPP? _____

Have all previous issues been addressed and corrected? _____

Overall Comments: _____

Site Number	Condition (S, NI, TD, or SL)	Remarks

This new question is now being asked to give a better indication of the project condition.
It is important to know if the items from the last inspection have been completed.
Have the inspectors answer this question in the SWTS in the Comments box at the bottom of the first screen before clicking OK to create their report.
For example, they may answer this question indicating that none, some, half, most, or all of the previous items have been completed.

Sheet ___ of ___

Form C-37 (Field Worksheet)
Revised 10/15

Alabama Department of Transportation
Stormwater Noncompliance Notification Report

Permit Sequence Number: _____ Inspection Number: _____

Project Number: _____ Date: _____

Complete one form for each Stormwater Discharge Point in a Turbid Discharge or Sediment Loss condition. Attach additional sheets as needed.

Site No.	County	MP or Station/Offset	Latitude	Longitude	Receiving Stream
A Noncompliance Notification Report is required for EACH site that has a turbid discharge or sediment loss condition.					

Description of Noncompliance or Noncompliant Discharge:
Describe sediment that has left ALDOT Right of Way (location, affected water body, estimated amount, attached photos, etc.).

Use this box to provide a description of the actual sediment that left the project.
For example, "Turbid water was discharging from the project."
Or, "Approximately 10 cubic yards of sediment was deposited off the project at this location."

Cause of Noncompliance:
Show contributing rainfall amounts/intensities, failed BMPs, Contractor inattention to Needs Improvement citations, etc.

Rainfall Accumulation (in): Rainfall Date/Duration: Event Frequency:

Use this box to provide a description of the issues that caused the sediment to leave the project.
First, tell how much rainfall the project received, the date of the rainfall, and how long it rained (ex.: 2 hours). Then, check the rainfall charts for the frequency of the event (or ask the Stormwater Coordinator).
Other example causes:
- Silt Fence was overtopped. - Wattle Ditch Check was blown out. - Contractor did not clean out BMPs before rain event.
- Required BMPs were not installed.

Period of Noncompliance:
Include exact date(s) and time(s) or, if not corrected, the anticipated time the noncompliance is expected to continue.

Use this box to tell how long the period of noncompliance lasted or is expected to persist.

Corrective Measures:
List all proposed and/or ongoing corrections with a proposed compliance schedule (amount of sediment removal and BMP repairs, additions, and modifications, etc.).

Use this box to list the things that need to be done to correct/repair the sediment loss and actions that will be done to prevent it from happening again. List things such as, BMPs to be repaired or replaced, maintenance to be performed, or sediment to be cleaned up.
Be sure to include a schedule for completing the items in this box. If it will require more than 5 days to complete, give a good reason why the Contractor needs more time.

Sheet ___ of ___

2 Year Frequency Rain Events

Reg/Area	County	30 min	1 hr	2 hr	3 hr	6 hr	12 hr	*24 hr	2 day	4 day	7 day	10 day
N/1	Cherokee	1.42	1.75	2.20	2.35	2.82	3.32	3.85	4.42	5.43	5.82	6.27
N/1	Cullman	1.42	1.72	2.20	2.39	2.88	3.40	3.93	4.48	5.49	6.19	6.79
N/1	DeKalb	1.39	1.70	2.13	2.32	2.78	3.27	3.82	4.37	5.33	5.69	6.13
N/1	Etowah	1.42	1.76	2.22	2.38	2.86	3.38	3.91	4.47	5.49	6.00	6.63
N/1	Jackson	1.34	1.64	2.05	2.27	2.73	3.22	3.77	4.32	5.20	5.79	6.38
N/1	Madison	1.34	1.62	2.06	2.29	2.75	3.26	3.79	4.33	5.21	5.87	6.42
N/1	Marshall	1.40	1.70	2.15	2.35	2.82	3.32	3.87	4.41	5.37	5.94	6.48
N/2	Colbert	1.36	1.61	2.07	2.33	2.80	3.35	3.85	4.46	5.33	6.11	6.66
N/2	Franklin	1.39	1.65	2.13	2.36	2.83	3.39	3.89	4.50	5.40	6.20	6.78
N/2	Lauderdale	1.34	1.59	2.02	2.30	2.75	3.29	3.78	4.40	5.24	5.99	6.50
N/2	Lawrence	1.38	1.64	2.11	2.34	2.81	3.34	3.85	4.43	5.34	6.07	6.59
N/2	Limestone	1.34	1.60	2.04	2.30	2.75	3.26	3.79	4.34	5.21	5.92	6.44
N/2	Morgan	1.39	1.67	2.13	2.34	2.81	3.34	3.86	4.41	5.34	6.00	6.54
EC/3	Blount	1.43	1.76	2.22	2.41	2.89	3.41	3.95	4.50	5.53	6.19	6.82
EC/3	Jefferson	1.47	1.83	2.28	2.47	2.99	3.52	4.09	4.76	5.70	6.54	7.22
EC/3	Shelby	1.49	1.87	2.31	2.53	3.06	3.60	4.21	4.89	5.83	6.71	7.45
EC/3	St. Clair	1.45	1.81	2.25	2.44	2.94	3.46	4.00	4.62	5.61	6.29	7.00
EC/4	Calhoun	1.45	1.81	2.25	2.43	2.91	3.43	3.95	4.56	5.59	6.13	6.82
EC/4	Chambers	1.51	1.90	2.33	2.54	2.99	3.59	4.07	4.81	5.82	6.52	7.19
EC/4	Clay	1.48	1.87	2.30	2.50	2.98	3.55	4.08	4.79	5.76	6.44	7.23
EC/4	Cleburne	1.45	1.82	2.25	2.42	2.90	3.42	3.93	4.54	5.58	6.08	6.72
EC/4	Coosa	1.52	1.92	2.35	2.59	3.11	3.68	4.29	5.02	5.93	6.85	7.62
EC/4	Randolph	1.48	1.86	2.29	2.48	2.94	3.50	3.98	4.68	5.71	6.31	7.00
EC/4	Talladega	1.48	1.85	2.30	2.50	3.00	3.55	4.10	4.79	5.75	6.49	7.26
EC/4	Tallapoosa	1.52	1.92	2.35	2.59	3.06	3.66	4.21	4.96	5.89	6.73	7.48
WC/5A	Bibb	1.52	1.92	2.35	2.58	3.13	3.67	4.35	5.07	5.93	6.92	7.69
WC/5A	Chilton	1.53	1.93	2.37	2.62	3.15	3.72	4.38	5.11	6.00	7.00	7.77
WC/5A	Hale	1.54	1.97	2.39	2.63	3.19	3.78	4.48	5.20	6.03	7.09	7.85
WC/5A	Perry	1.55	1.98	2.40	2.66	3.22	3.78	4.50	5.24	6.12	7.18	7.98
WC/5A	Sumter	1.56	2.01	2.41	2.67	3.24	3.85	4.54	5.28	6.08	7.16	7.90
WC/5A	Tuscaloosa	1.50	1.87	3.30	2.50	3.06	3.63	4.22	4.93	5.82	6.76	7.46
WC/5B	Fayette	1.46	1.78	2.25	2.44	2.96	3.53	4.05	4.76	5.65	6.53	7.23
WC/5B	Greene	1.54	1.96	2.37	2.61	3.16	3.76	4.44	5.16	5.95	7.00	7.78
WC/5B	Lamar	1.45	1.77	2.25	2.44	2.96	3.54	4.07	4.78	5.64	6.52	7.25
WC/5B	Marion	1.42	1.71	2.20	2.39	2.89	3.45	3.95	4.62	5.51	6.35	7.00
WC/5B	Pickens	1.50	1.87	2.31	2.50	3.06	3.67	4.26	4.97	5.81	6.76	7.52
WC/5B	Walker	1.45	1.79	2.24	2.44	2.94	3.49	4.00	4.68	5.62	6.44	7.09
WC/5B	Winston	1.42	1.71	2.20	2.39	2.88	3.42	3.93	4.54	5.49	6.28	6.86
SE/6	Autauga	1.56	1.98	2.41	2.69	3.24	3.81	4.50	5.26	6.22	7.21	8.00
SE/6	Bullock	1.58	2.01	2.44	2.73	3.23	3.87	4.50	5.23	6.26	7.20	8.00
SE/6	Butler	1.64	2.08	2.56	2.87	3.44	4.14	4.84	5.65	6.75	7.74	8.59
SE/6	Dallas	1.58	2.02	2.47	2.74	3.31	3.91	4.65	5.39	6.37	7.42	8.25
SE/6	Elmore	1.54	1.96	2.38	2.67	3.18	3.77	4.40	5.15	6.09	7.05	7.84
SE/6	Lee	1.53	1.94	2.36	2.59	3.03	3.66	4.17	4.90	5.90	6.70	7.33
SE/6	Lowndes	1.59	2.02	2.48	2.78	3.33	3.94	4.66	5.43	6.46	7.45	8.29
SE/6	Macon	1.55	1.97	2.39	2.67	3.15	3.78	4.36	5.10	6.06	7.00	7.75
SE/6	Montgomery	1.57	2.00	2.45	2.75	3.27	3.89	4.56	5.31	6.33	7.30	8.15
SE/6	Russell	1.56	1.97	2.38	2.63	3.07	3.73	4.23	4.96	5.96	6.82	7.41
SE/7	Barbour	1.59	2.02	2.46	2.74	3.23	3.89	4.45	5.22	6.26	7.18	7.93
SE/7	Coffee	1.66	2.09	2.59	2.90	3.50	4.25	4.88	5.70	6.81	7.79	8.63
SE/7	Covington	1.69	2.12	2.69	2.97	3.70	4.42	5.11	5.93	7.12	8.14	8.92
SE/7	Crenshaw	1.62	2.06	2.54	2.86	3.41	4.08	4.79	5.57	6.68	7.64	8.51
SE/7	Dale	1.64	2.07	2.56	2.86	3.41	4.14	4.74	5.52	6.65	7.61	8.42
SE/7	Geneva	1.70	2.12	2.66	2.96	3.65	4.38	4.99	5.86	7.00	8.00	8.86
SE/7	Henry	1.63	2.05	2.52	2.81	3.32	4.00	4.58	5.36	6.44	7.38	8.15
SE/7	Houston	1.68	2.10	2.59	2.90	3.47	4.21	4.76	5.62	6.71	7.70	8.50
SE/7	Pike	1.60	2.05	2.51	2.81	3.35	4.00	4.68	5.42	6.53	7.50	8.33
SW/8	Choctaw	1.62	2.09	2.51	2.79	3.38	4.00	4.72	5.50	6.44	7.58	8.29
SW/8	Clarke	1.68	2.12	2.59	2.89	3.47	4.22	4.88	5.75	6.75	7.87	8.64
SW/8	Marengo	1.59	2.05	2.48	2.75	3.32	3.93	4.68	5.46	6.37	7.45	8.22
SW/8	Monroe	1.69	2.12	2.62	2.91	3.50	4.31	4.94	5.84	6.90	7.95	8.77
SW/8	Washington	1.72	2.16	2.66	2.93	3.59	4.34	4.95	5.87	6.85	8.13	8.78
SW/8	Wilcox	1.63	2.07	2.53	2.82	3.40	4.00	4.78	5.59	6.61	7.62	8.46
SW/9	Baldwin	1.84	2.34	2.93	3.29	4.10	5.10	5.81	6.67	8+	9+	10+
SW/9	Conecuh	1.69	2.12	2.65	2.93	3.63	4.35	4.97	5.88	7.00	8.00	8.84
SW/9	Escambia	1.74	2.17	2.77	3.07	3.91	4.67	5.43	6.17	7.50	8.64	9.29
SW/9	Mobile	1.86	2.36	2.93	3.21	4.04	4.94	5.73	6.61	8.00	9+	10+

Data is approximated for the center of each county based on Technical Papers No. 40 and 49. For more accurate information, see your project's Construction Best Management Practices Plan (CBMPP).

5 Year Frequency Rain Events

Reg/Area	County	30 min	1 hr	2 hr	3 hr	6 hr	12 hr	24 hr	2 day	4 day	7 day	10 day
N/1	Cherokee	1.74	2.21	2.66	2.97	3.54	4.23	4.89	5.61	6.68	7.72	8.60
N/1	Cullman	1.71	2.18	2.68	2.97	3.57	4.31	4.97	5.74	6.86	7.89	8.77
N/1	DeKalb	1.69	2.16	2.61	2.91	3.46	4.15	4.83	5.54	6.59	7.64	8.48
N/1	Etowah	1.75	2.22	2.68	3.00	3.58	4.29	4.97	5.70	6.78	7.82	8.71
N/1	Jackson	1.63	2.11	2.54	2.85	3.39	4.05	4.75	5.45	6.49	7.52	8.35
N/1	Madison	1.62	2.10	2.54	2.85	3.41	4.09	4.78	5.49	6.55	7.58	8.38
N/1	Marshall	1.70	2.16	2.62	2.93	3.49	4.20	4.88	5.62	6.70	7.73	8.57
N/2	Colbert	1.63	2.12	2.56	2.89	3.46	4.12	4.87	5.64	6.63	7.81	8.58
N/2	Franklin	1.66	2.15	2.61	2.92	3.51	4.20	4.94	5.70	6.72	7.92	8.69
N/2	Lauderdale	1.60	2.09	2.50	2.85	3.42	4.04	4.79	5.54	6.55	7.69	8.44
N/2	Lawrence	1.65	2.13	2.59	2.90	3.47	4.17	4.87	5.63	6.69	7.78	8.59
N/2	Limestone	1.60	2.09	2.52	2.85	3.40	4.10	4.78	5.51	6.55	7.60	8.39
N/2	Morgan	1.67	2.14	2.60	2.91	3.47	4.22	4.87	5.63	6.71	7.74	8.58
EC/3	Blount	1.74	2.21	2.70	3.00	3.61	4.35	5.00	5.77	6.88	7.92	8.80
EC/3	Jefferson	1.79	2.27	2.80	3.10	3.75	4.51	5.23	5.96	7.17	8.38	9.16
EC/3	Shelby	1.84	2.32	2.86	3.18	3.84	4.61	5.36	6.10	7.32	8.66	9.37
EC/3	St. Clair	1.79	2.25	2.75	3.07	3.69	4.42	5.13	5.85	6.96	8.04	8.92
EC/4	Calhoun	1.81	2.26	2.74	3.06	3.65	4.37	5.07	5.78	6.84	7.91	8.81
EC/4	Chambers	1.87	2.38	2.87	3.21	3.84	4.54	5.29	5.94	7.00	8.21	9.07
EC/4	Clay	1.85	2.33	2.93	3.16	3.79	4.50	5.25	5.93	7.00	8.24	9.06
EC/4	Cleburne	1.82	2.27	2.74	3.06	3.65	4.35	5.00	5.75	6.80	7.85	8.79
EC/4	Coosa	1.88	2.38	2.91	3.24	3.92	4.69	5.49	6.20	7.40	8.92	9.58
EC/4	Randolph	1.85	2.33	2.81	3.14	3.75	4.44	5.17	5.86	6.91	7.98	8.94
EC/4	Talladega	1.84	2.31	2.82	3.14	3.78	4.52	5.26	5.96	7.11	8.33	9.15
EC/4	Tallapoosa	1.88	2.39	2.90	3.24	3.89	4.64	5.40	6.09	7.27	8.62	9.42
WC/5A	Bibb	1.85	2.34	2.92	3.24	3.94	4.72	5.50	6.31	7.55	9.03	9.72
WC/5A	Chilton	1.88	2.37	2.94	3.26	3.98	4.76	5.57	6.37	7.57	9.08	9.80
WC/5A	Hale	1.89	2.38	2.99	3.31	4.03	4.82	5.61	6.49	7.68	9.13	9.93
WC/5A	Perry	1.90	2.39	3.01	3.33	4.08	4.85	5.68	6.55	7.76	9.21	10.07
WC/5A	Sumter	1.91	2.41	3.03	3.35	4.06	4.88	5.68	6.60	7.76	9.17	10.00
WC/5A	Tuscaloosa	1.80	2.30	2.87	3.16	3.85	4.61	5.36	6.17	7.31	8.74	9.46
WC/5B	Fayette	1.74	2.24	2.77	3.06	3.71	4.45	5.18	5.94	7.00	8.36	9.12
WC/5B	Greene	1.87	2.36	2.96	3.29	3.98	4.78	5.52	6.44	7.58	9.07	9.83
WC/5B	Lamar	1.74	2.24	2.76	3.05	3.70	4.44	5.18	5.95	6.96	8.38	9.11
WC/5B	Marion	1.69	2.19	2.68	2.97	3.60	4.31	5.04	5.81	6.84	8.11	8.86
WC/5B	Pickens	1.80	2.31	2.87	3.18	3.85	4.63	5.36	6.22	7.28	8.73	9.48
WC/5B	Walker	1.74	2.23	2.75	3.04	3.68	4.42	5.12	5.89	7.00	8.21	9.00
WC/5B	Winston	1.70	2.18	2.67	2.96	3.58	4.31	4.98	5.77	6.85	7.96	8.80
SE/6	Autauga	1.91	2.42	3.01	3.34	4.09	4.87	5.71	6.55	7.80	9.26	10.10
SE/6	Bullock	1.94	2.49	3.06	3.40	4.12	4.93	5.76	6.52	7.81	9.17	10.00
SE/6	Butler	2.00	2.54	3.25	3.55	4.39	5.27	6.18	7.13	8.51	9.66	10.95
SE/6	Dallas	1.95	2.46	3.11	3.41	4.20	4.97	5.85	6.77	8.00	9.42	10.45
SE/6	Elmore	1.91	2.42	2.97	3.31	4.00	4.79	5.61	6.37	7.61	9.11	9.84
SE/6	Lee	1.89	2.42	2.92	3.27	3.91	4.63	5.39	6.07	7.18	8.48	9.24
SE/6	Lowndes	1.96	2.48	3.13	3.42	4.23	5.02	5.91	6.78	8.14	9.44	10.50
SE/6	Macon	1.92	2.45	2.97	3.34	4.00	4.79	5.58	6.33	7.55	9.00	9.69
SE/6	Montgomery	1.94	2.47	3.07	3.40	4.15	4.94	5.82	6.62	7.92	9.28	10.25
SE/6	Russell	1.91	2.45	2.97	3.32	3.96	4.72	5.46	6.20	7.31	8.62	9.32
SE/7	Barbour	1.95	2.50	3.08	3.42	4.13	4.95	5.77	6.55	7.79	9.14	10.00
SE/7	Coffee	2.00	2.57	3.28	3.62	4.46	5.38	6.31	7.25	8.60	9.68	11.02
SE/7	Covington	2.06	2.60	3.38	3.76	4.65	5.67	6.67	7.62	8.94	9.92	11.42
SE/7	Crenshaw	1.98	2.53	3.22	3.50	4.36	5.23	6.15	6.95	8.44	9.58	10.80
SE/7	Dale	1.99	2.56	3.22	3.53	4.36	5.26	6.14	6.95	8.38	9.51	10.65
SE/7	Geneva	2.05	2.60	3.35	3.77	4.60	5.54	6.48	7.52	8.86	9.85	11.26
SE/7	Henry	1.98	2.54	3.16	3.48	4.25	5.10	5.95	6.74	8.07	9.31	10.27
SE/7	Houston	2.02	2.58	3.27	3.62	4.43	5.33	6.25	7.05	8.48	9.57	10.71
SE/7	Pike	1.97	2.52	3.16	3.46	4.27	5.13	6.00	6.79	8.22	9.41	10.55
SW/8	Choctaw	2.01	2.51	3.20	3.50	4.26	5.16	6.06	6.90	8.21	9.49	10.68
SW/8	Clarke	2.07	2.57	3.30	3.68	4.43	5.42	6.38	7.30	8.62	9.73	11.13
SW/8	Marengo	1.97	2.46	3.14	3.44	4.21	5.02	5.88	6.82	8.03	9.42	10.47
SW/8	Monroe	2.07	2.58	3.34	3.70	4.49	5.48	6.50	7.45	8.76	9.82	11.29
SW/8	Washington	2.11	2.63	3.38	3.76	4.50	5.63	6.65	7.48	8.79	9.85	11.42
SW/8	Wilcox	2.00	2.51	3.22	3.50	4.32	5.19	6.09	7.00	8.34	9.60	10.82
SW/9	Baldwin	2.23	2.85	3.70	4.10	5.23	6.50	7.72	8.47	9.86	10+	12+
SW/9	Conecuh	2.07	2.59	3.36	3.72	4.53	5.50	6.59	7.53	8.85	9.87	11.37
SW/9	Escambia	2.13	2.68	3.46	3.89	4.82	6.04	7.11	7.91	9.33	10+	11.74
SW/9	Mobile	2.23	2.87	3.65	4.07	5.16	6.45	7.56	8.30	9.61	10+	12+

Data is approximated for the center of each county based on Technical Papers No. 40 and 49.

ESCP - PHASING

Erosion & Sediment Control Plan Sheets must be split into **three phases**, with the exception of some resurfacing type projects. The three phases of Erosion & Sediment Control Plans Sheets are:

1. **Initial Phase** - As clearing begins and prior to any grubbing or grading work.
   Sometimes referred to as the "Pre-Construction Phase".
   Examples: Stabilized Construction Entrances
   Perimeter Barriers
   Stream Protection
   Temporary Sedimentation Basins
   Vegetated Buffers
2. **Intermediate Phase** - As needed, as work is ongoing and advancing towards completion.
   Sometimes referred to as the "Construction Phase".
   Examples: Temporary Diversions
   Ditch Checks
   Sumps
   Inlet Protection (Stages 1 and 2)
   Temporary Slope Drains
   Earth Berms
   BMPs for Designated Material Stockpiles
   May also include BMPs from the previous phase.
3. **Final Phase** - As work is completed and permanent vegetation is established.
   Sometimes referred to as the "Post Construction Phase".
   Examples: Inlet Protection (Stages 3 and 4)
   Permanent Stabilization
   Sand Bag Ditch Checks
   May also include BMPs from the previous phases.

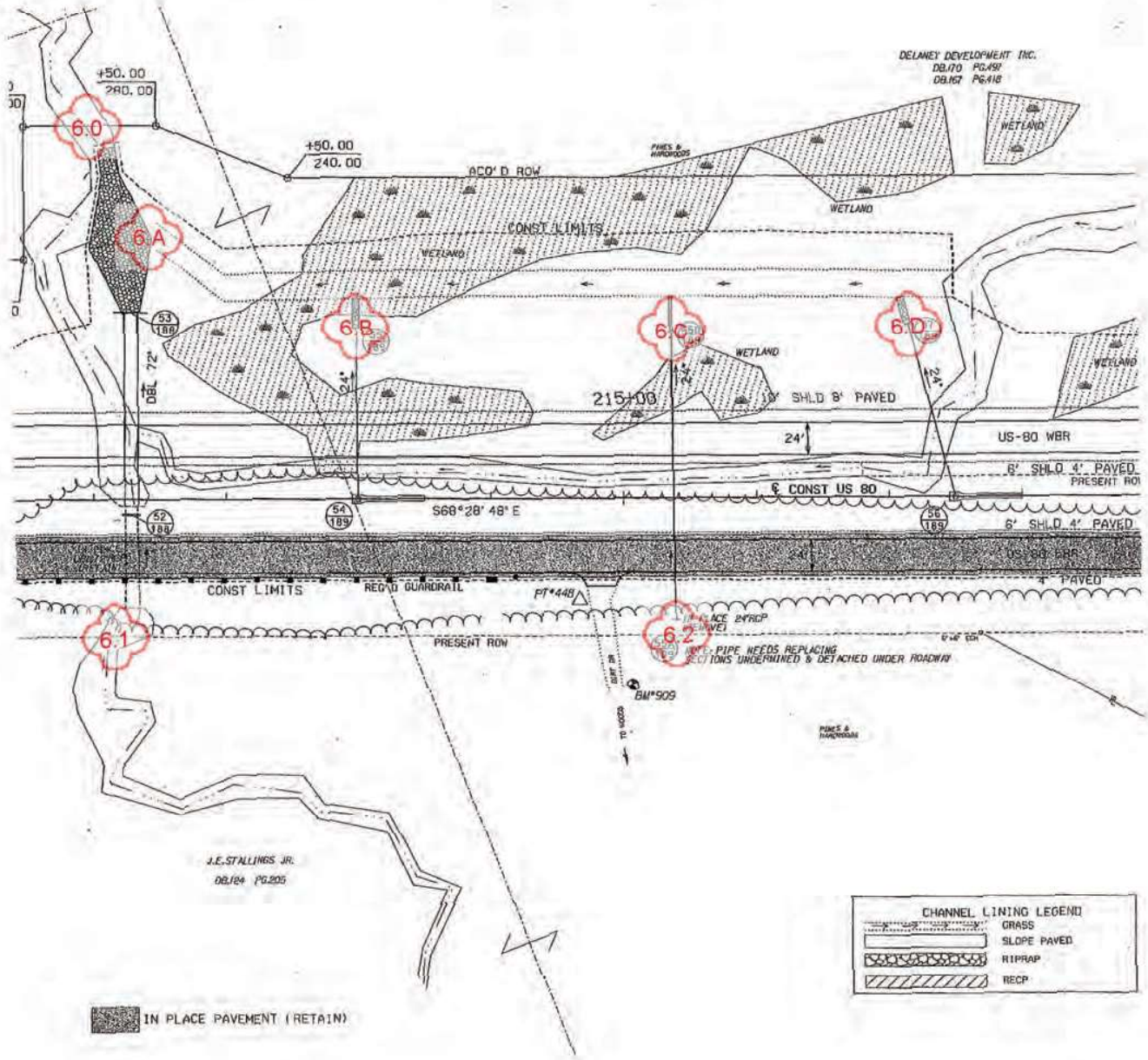
ESCP – IDENTIFICATION OF STORMWATER POINTS

All three phases of the Erosion & Sediment Control Plan Sheets must **identify the locations** of Stormwater Discharge and Background Points.

- **Primary Stormwater Discharge Points** – locations at which channelized construction stormwater discharge or a water of the state leaves the ALDOT ROW.
  Identified by an integer that represents the contributing drainage area followed by a zero in the decimal place (example **25.0**). **Identify in the field** with the point number on a wooden stake.
- **Secondary Stormwater Discharge Points** – locations within the ALDOT ROW where channelized construction stormwater discharge enters into a water of the State.
  Identified by an integer, which is the same as the associated Primary Stormwater Discharge Point, followed by a letter in the decimal place (example **25.A**).
- **Background Points** – location at which channelized stormwater flow or a water of the State enters the ALDOT ROW.
  Identified by an integer, which is the same as the associated Primary Stormwater Discharge Point, followed by a non-zero number in the decimal place (example **25.1**).

Turbidity – there shall be no turbidity of other than natural origin that will cause substantial visible contrast with the natural appearance of waters or interfere with any beneficial uses which they serve. Furthermore, in no case shall turbidity exceed 50 Nephelometric units above background. Background will be interpreted as the natural condition of the receiving waters without the influence of man-made or man-induced causes. Turbidity levels caused by natural runoff will be included in establishing background levels.

Construction Stormwater Discharge and Background Points - Example



6.0 PRIMARY STORMWATER DISCHARGE POINT

6.1 6.2 BACKGROUND POINTS

6.A 6.B 6.C 6.D SECONDARY STORMWATER DISCHARGE POINTS (Only label if discharging to a Water of the State)

SAMPLING GUIDE

TURBIDITY MONITORING / CONSTRUCTION STORMWATER SAMPLING:

Check CBMPP and/or Plan Notes for Sampling Requirements.

- Required on all Priority Construction Sites* that disturb **10 acres** or more of erodible material, in the drainage areas noted as discharging to a Priority Water.
- A turbidity difference of **50 NTU** or greater equals a **Turbid Discharge Condition**.
- Conduct **ASAP** during/after a rain event, even if the Contractor QCI is not available.
- Turbidity data is recorded in the Stormwater Tracking System as part of the Site Inspection.

  *** Priority Construction Site** - a construction project that discharges to a waterbody which is 303(d) listed, has an established TMDL, is an Outstanding Alabama Water, Treasured Alabama Lake, or has another special designation.

SAMPLING PREPARATION:

To be completed in the office, before sampling is conducted.

1. Clean Sample Collection and Analysis Equipment
2. Check Calibration of Turbidimeter (Calibrate if necessary)
3. Complete Equipment Checklists

Project Office Equipment:

- ☐ Cleaning Brush(es)
- ☐ Phosphate-Free Detergent
- ☐ Distilled or Deionized Water (gallon jugs)

Field Equipment:

- ☐ †Portable Turbidimeter
- ☐ †Calibration Standards
- ☐ †Cleaning Cloth
- ☐ †Silicone Oil
- ☐ †Sample Tubes
- ☐ Squirt Bottle (fill with distilled or deionized water)
- ☐ Sample Collection Containers
- ☐ Sample Storage Containers
- ☐ Waterproof Labels
- ☐ Waterproof Ink Pens

} For samples exceeding 1000 NTU

†Contractor furnished equipment.

SAMPLING PROCEDURE:

Take **grab** samples from the **center** of flow, **upstream** of you or any disturbance you cause, for each drainage area that it is required in this order:

a. Primary Stormwater Discharge Point
b. Secondary Stormwater Discharge Points (if substantial visible contrast)
c. Background Points (if exists/identified)

1. Rinse sample collection container in the water to be sampled.
2. Hold the sample collection container near the base.
3. Turn the opening downward towards the water surface.
4. Plunge the container into the water 8-12 inches beneath the surface (or halfway down for shallower flows). ***DO NOT TOUCH THE BOTTOM OF THE CHANNEL!***
5. Turn the container opening away from you and in an upstream direction to collect the water sample.

SAMPLING GUIDE
(continued)

ACCEPTABLE REASONS FOR NOT CONDUCTING REQUIRED SAMPLING:

- **Prior to Construction** - work has not begun in the drainage area; or, channelized flow does not exist because the pipe or ditch at the sampling location has not been constructed.
- **Insufficient Flow** - unable to collect a sample without the sample collection container touching the bottom of the conveyance (ex. ditch bottom, stream bed, pipe, etc.).
- **Hazardous Condition** - a life-threatening hazardous condition exists at the sampling location (you must document what the hazard is).
- **Monitoring Suspended** - final required stabilization is installed or applied, erosion is controlled to the maximum extent practicable, and stormwater sampling results have shown compliance for the last two months.

SAMPLING ANALYSIS:

Conduct analysis of the sample **in the field immediately** after sample collection.

1. Place the turbidimeter on a level surface. ***DO NOT HOLD IT IN YOUR HAND!***
2. Fill a sample tube by pouring water from the sample collection container.
3. Securely cap and dry the sample tube, and follow the turbidimeter instructions to read NTUs.
    a. Record NTUs on Stormwater Turbidity Sampling Report.
    b. If the sample receives an error, it has turbidity greater than 1000 NTU. Continue through to Dilution Analysis.
        i. Place sample in a collection container with an identification label (project number, sampling point number, date, time, your name).
        ii. Transport to the project office within 15 minutes for further analysis. Otherwise, cool to 4°C [39.2°F] for up to 48 hours.
4. Rinse sample tube with distilled water to allow immediate reuse.
5. Clean equipment in the office.

DILUTION ANALYSIS (FOR SAMPLES OVER 1000 NTU):

To be conducted **in the project office within 15 minutes** of sample collection, unless cooled to 4°C [39.2°F] for up to 48 hours.

1. Agitate the sample to re-suspend any settled particles.
2. Measure one unit of the sample (this can be any unit of volume).
3. Dilute by adding one unit of turbidity-free distilled water.
4. Measure the turbidity of the mixture.
    i. If 1000 NTU or greater, repeat steps 3 and 4, keeping record of how many units of distilled water are added.
    ii. If less than 1000 NTU, continue with step 5.
5. Turbidity of the Collected Sample (T_S) equals the Turbidity of the Diluted Sample (T_D) multiplied by the number of units of distilled water added plus 1.

$$T_S = T_D \times (\text{units of distilled water added} + 1)$$

Example: One (1) Unit of the Collected Sample
Three (3) Units of Distilled Water
Turbidity Reading of Diluted Sample (T_D) = 750 NTU

Answer: Turbidity of Collected Sample (T_S) = 750 NTU x (3 + 1) = **3000 NTU**

DIVISION 100
GENERAL PROVISIONS

SECTION 101
DEFINITION OF TERMS

101.01 Definitions.

Wherever the following terms or abbreviations (or pronouns in place of them) are used in these Specifications or in other contract documents, the intent and meaning shall be interpreted as follows:

(a) Abbreviations.

AAN	American Association of Nurserymen
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
ADEM	Alabama Department of Environmental Management
AGC	The Associated General Contractors of America, Inc.
AIA	American Institute of Architects
AISC	American Institute of Steel Construction
ALDOT	Alabama Department of Transportation
ANSI	American National Standards Institute
ARA	American Railway Association
ARTBA	American Road and Transportation Builders Association
AREA	American Railway Engineering Association
ASCE	American Society of Civil Engineers
ASLA	American Society of Landscape Architects
ASTM	American Society for Testing and Materials
AWPA	American Wood Preservers' Association
AWS	American Welding Society
AWWA	American Water Works Association
FHWA	Federal Highway Administration
FSS	Federal Specifications and Standards, General Services Administration
IMSA	International Municipal Signal Association, Inc.
ITE	Institute of Transportation Engineers
LPA	Local Public Agency
LVD	Laboratory Vibrated Density
MSDSAR	Materials, Sources, and Devices with Special Acceptance Requirements
MUTCD	Manual on Uniform Traffic Control Devices for Streets and Highways
NEC	National Electrical Code
NEMA	National Electrical Manufacturers' Association
SAE	Society of Automotive Engineers
SSPC	SSPC: The Society for Protective Coatings
UL	Underwriters' Laboratories, Inc.

(b) Terms.

Acceptance Plan. A prescribed method of sampling, measuring and testing together with criteria for the acceptability of a lot of material or construction.

Additive. A substance or agent added in small amounts to a basic ingredient of a mixture prior to mixing.

Adjusted Contract Amount. The current contract amount that is determined by applying actual and projected changes to the Contract Bid Price (original contract amount) caused by quantity overruns or underruns in contract items and actual and projected costs for extra work, either by supplemental agreement or by force account.

Advertisement For Bids or Notice to Contractors. A public announcement inviting bids for work to be performed or materials to be furnished, as required by law.

Area. A subdivision of a **Region** for the supervision of the **Department's** construction and maintenance operations.

Area Engineer. The engineer in charge of one of the Areas of the State.

Article. An immediate subheading of a section of these Specifications consisting of Subarticles, Items, Subitems and/or paragraphs which set forth details and requirements essential or necessary to form the Specifications. Specifications are divided into Divisions (100), Divisions into Sections (109), Sections into Articles (109.04), Articles into Subarticles (109.04(b)), Items (109.04(b)9.), Subitems and paragraphs.

Award. The acceptance by the Director of the proposal of the lowest responsible bidder, as required by law.

Backfill. Material used to replace or the act of replacing material removed during construction; also, may denote material placed or the act of placing material adjacent to structures.

Back Slope. The sloping surface of a cut, of which the downward inclination is toward the roadbed.

Base. The layer or layers of specified materials of designed thickness placed on a subbase or a subgrade to support a pavement or surface.

Bidder. An individual, firm, partnership, corporation or any acceptable combination thereof submitting a bid for the advertised work.

Binder Layer. The lower layer of the surface, consisting of a plant mix of graded aggregate and bituminous material.

Bituminous Concrete. A designed combination of dense graded mineral aggregate filler and bituminous cement mixed in a central plant, laid and compacted while hot.

Borrow. Suitable material from sources outside the roadway prism, used primarily for embankments.

Bridge. A structure, including supports, erected over a depression or an obstruction, such as water, highway, or railway, and having a track or passageway for carrying traffic or other moving loads, and having an opening measured along the center of the roadway of more than 20 feet {6.1 m} between under copings of abutments or spring lines of arches, or extreme ends of openings for multiple boxes; it may also include multiple pipes, where the clear distance between openings is less than half of the smaller contiguous opening.

Bridge Length. The length of a bridge structure is the over-all length measured along the line of survey stationing back-to-back of backwalls of abutments, if present; otherwise, end to end of the bridge floor; but in no case less than the total clear opening of the structure.

Bridge Roadway Width. The clear width measured at right angles to the longitudinal centerline of the bridge between the bottom of curbs or guard timber risers.

Bypass. An arterial highway that permits traffic to avoid part or all of an urban area.

Calendar Day. Every day shown on the calendar, beginning and ending at midnight, Sundays, and holidays included.

Calendar Completion Date. The date on which the contract work is specified to be completed.

Construction Change and/or Work Order Request. A written document between the Department and the FHWA covering proposed project changes.

Construction Joint. A joint made necessary by a prolonged interruption in the placing of concrete.

Contract. The written agreement between the State of Alabama and the Contractor setting forth the obligations of the parties hereunder for the performance of the prescribed work. The Contract includes the proposal, contract forms, contract bonds, specifications, special provisions, general and detailed plans, notice to proceed, and any change orders and supplemental agreements that are required to complete the construction of the work in an acceptable manner, including authorized extensions thereof, and such other documents as by law or references made a part thereof, all of which constitute one instrument.

Contract Bid Price. The sum total of the products of the approximate quantities of the items of the work listed in the proposal and the respective unit prices bid in the proposal.

Contract Bonds. The approved bonds furnished and executed by the Contractor and his surety to guarantee completion of the contract in accordance with its terms.

Contract Item. (Pay Item). A specifically described unit of work for which a price is provided in the contract. Each pay item is numbered and is paid for under the terms of the specification section of the same number.

Contract Payment Bond. The bond furnished by the Contractor and his surety to guarantee payment of the debts covered by the bond.

Contract Performance Bond. The bond furnished by the Contractor and his surety to guarantee performance of the work in accordance with the contract.

Contract Period or Contract Time. The number of workdays or calendar days allowed for completion of the contract, including authorized time extensions. In a case where a calendar date of completion is shown in the proposal, in lieu of the number of working or calendar days, such work contemplated shall be completed by that date.

Contraction Joint. A joint at the ends of a rigid slab to control the location of transverse cracking.

Contractor. The individual, partnership, firm, corporation, or any acceptable combination thereof contracting with the State for performance of prescribed work.

Controlling Item(s). The current controlling item(s) or operation(s) includes any feature of the work considered at the time by the Engineer as essential to the orderly completion of the work and which, if delayed, will delay the time of completion of the contract.

County. The county or counties of Alabama in which work herein specified is to be performed.

Culvert. Any structure not classified as a bridge which provides an opening under the roadway.

Dense Graded Aggregate. A well-graded aggregate so proportioned as to contain a relatively small percentage of voids.

Department. Alabama Department of Transportation, as constituted under the laws of Alabama for administration of highway work.

Detour. A route provided for traffic to use in lieu of a regular route.

Director. The chief executive officer of the Alabama Department of Transportation as created by law, also referred to herein as Transportation Director.

Divided Highway. A highway with separated roadways for travel in opposite directions.

Dowel. A load transfer element usually consisting of a plain round steel bar.

Drainage Plane. A plane for internal drainage of the roadbed, usually formed by a layer of water-permeable material.

Easement. A right to use or control the property of another for designated purposes.

Embankment. A structure of soil, soil-aggregate or broken rock between the embankment foundation and the subgrade.

Embankment Foundation. The material below the original ground surface the physical characteristics of which affect the support of the embankment.

Employee. Any person working on the project to which these specifications apply, and who is under the direction or control of, or receives compensation from, the Contractor or Subcontractor.

Engineer. A qualified Department staff member designated by the Director, acting either directly or through his authorized assistants or representatives, who is responsible for engineering supervision of construction activities.

Equipment. All machinery and equipment, together with the necessary supplies for operation and upkeep, maintenance, and protection, and also tools and apparatus necessary for the proper construction and acceptable completion of the work.

Existing. The physical status as of the date of the invitation for bids of any structure, base, surface, subgrade, road, bridge, detour, or other unit affected by a particular project or designated highway.

Expansion Joint. A joint located to provide for expansion of a rigid slab, without damage to itself, adjacent slabs, or structures.

Extra Work. An item of work not provided for in the contract as awarded but found essential to the satisfactory completion of the contract within its intended scope.

Extra Work Order. A change order concerning the performance of work or furnishing of materials involving extra work. Such extra work may be performed at agreed prices or on a force account basis as provided elsewhere in these specifications.

Faulting. Differential vertical displacement of rigid slabs at a joint or crack.

Flagman. An individual with a flag, stop/slow paddle, or other approved signaling device, whose duty is to signal vehicular traffic to: (1) come to a stop, (2) alter its speed and/or course, or (3) receive other instructions with reference to highway routes and their condition.

Flexible Pavement. A pavement structure which maintains intimate contact with and distributes loads to the subgrade and depends upon aggregate interlock, particle friction, and cohesion for stability.

Force Account Work. Work paid for by reimbursing the actual costs for labor, materials, and equipment usage incurred in the performance of the work, as directed, including a percentage for overhead and profit, where appropriate.

Frontage Road. A local street or road auxiliary to and located generally on the side of an arterial highway, for service to abutting property and adjacent areas and for control of access to the highway.

Front Slope. The sloping surface of an embankment or roadway side ditch of which the downward inclination is away from the roadbed.

General Application Special Provisions. See "Special Provisions".

Grade Separation. A structure, with its approaches, which provides for highway traffic to pass without interruption over or under a railway, street, or another highway.

Highway, Street or Road. A general term denoting a public way for purpose of vehicular travel, including the entire area within the right of way.

Holiday. See "Legal Holiday".

In Place. A term to denote that the unit price covers compensation for the item complete in place including all costs incidental to procurement, handling, hauling, and processing the item (including water) as required. The item will be measured and paid for in the manner provided in applicable sections of these specifications.

Inspector. The Engineer's authorized representative assigned to make detailed inspection of contract performance.

Interchange. A system of interconnecting roadways, in conjunction with one or more grade separations, providing for the movement of traffic between two or more roadways on different levels.

Intersection. The general area where two or more highways join or cross, within which are included the roadway and roadside facilities for traffic movements in that area.

Joint. A designed vertical plane of separation or weakness.

Laboratory. The testing laboratory of the Department or any other testing laboratory which may be designated by the Engineer.

Legal Holiday. Holidays which will be allowed in computing Contractor's time charges on a working day basis will be limited to the following days: Sundays, New Year's Day, Robert E. Lee's/Martin Luther King's Birthday (the third Monday in January), George Washington's/Thomas Jefferson's Birthday (the third Monday in February), Mardi Gras Day (Mobile and Baldwin Counties only), Confederate Memorial Day, National Memorial Day, Jefferson Davis' Birthday, Independence Day, Labor Day, Columbus Day/Fraternal Day (the second Monday in October), Veterans' Day, Thanksgiving Day, and Christmas Day. All dates for legal holidays will be as prescribed by Alabama Act 250 of 1991. Dates for combined holidays are shown herein.

Leveling Course. The layer of material placed on an existing surface to eliminate irregularities prior to placing an overlaying course.

Load Transfer Device. A mechanical means designed to carry loads across a joint.

Local Road or Street. A street or road primarily for access to residence, business, or other abutting property.

Longitudinal Joint. A joint normally placed between traffic lanes to control longitudinal cracking.

Lot. A uniquely defined quantity of material from a single source, or homogeneous segment of construction, on which decision is made for acceptance.

Major Highway. An arterial highway with intersections at grade and direct access to abutting property, and on which geometric design and traffic control measures are used to expedite the safe movement of through traffic.

Major Item. Any item having an original contract value in excess of 10 percent of the total contract bid price.

Major Street. An arterial highway with intersections at grade and direct access to abutting property, and on which geometric design and traffic control measures are used to expedite the safe movement of through traffic.

Material Vendor. A corporation, firm or individual who sells or rents supplies, equipment, or materials to a Contractor or Subcontractor or whose materials are prepared away from the construction premises and are delivered in final form to the construction site; such delivery being merely incidental to the sale. Material vendor must be a separate legal entity with independent investment in facilities and equipment and an independent business organization and operation, exercising a prerequisite degree of independent initiative, judgment, and foresight. A corporation, firm or individual which establishes a temporary plant or facility of any kind on or near a project for the purpose of furnishing material for that project only will not be considered a "material vendor" but will be considered a "Subcontractor" as defined in these specifications.

Materials. Any substances specified for use in the construction of the project and its appurtenances.

Materials, Sources, and Devices with Special Acceptance Requirements (MSDSAR) Manual. The manual containing lists of ALDOT approved materials, sources and devices (Qualified Products List) along with procedures governing the acceptance and use of these materials.

Median. That portion of a divided highway separating the traveled ways for traffic in opposite directions.

Median Lane. A speed-change lane within the median to accommodate left-turning vehicles.

Navigable Stream. A stream classed by the U.S. Coast Guard and/or the U.S. Army Corps of Engineers as navigable.

Notice to Contractors. See "Advertisement for Bids".

Notice to Proceed (Work Order). Written notice to the Contractor informing him of approval of his contract and notifying him to proceed with the contract work, including, when applicable, the date of beginning of contract time.

Original Contract Amount. The total contract bid price not including changes caused by quantity overruns, underruns, or extra work.

Original Ground. The ground surface just prior to the initiation of the proposed work.

Parking Lane. An auxiliary lane primarily for the parking of vehicles.

Pavement Structure. The combination of subbase, base, and surface placed on a subgrade to support the traffic load and distribute it to the roadbed.

Pay Item. See "Contract Item".

Plans. The contract drawings, which show the location, character, dimensions, and details of the prescribed work, including layouts, profiles, cross sections, and other details or reproductions thereof.

Prime Coat. An application of a low viscosity liquid bituminous material to coat and bind mineral particles preparatory to placing a base or surface course.

Professional Service. An individual or firm who provides highly specialized technical or unique functions in areas such as engineering, surveying, testing, inspection, certification, and environmental remediation. These services may or may not require professional licensure.

Profile Grade. The trace of a vertical plane intersecting the top surface of the proposed wearing surface, usually along the longitudinal centerline of the roadbed. Profile grade means either elevation or gradient of such trace according to the contract.

Progress Based Pay Items. Contract pay items for which progress payments (monthly estimate payments) are based on the progress of construction. Progress based pay items include Mobilization,

Construction Fuel, Geometric Controls, and other items for which payments will be based on the progress of construction.

Project. The specified section of the highway together with all appurtenances and construction to be performed thereon under the contract.

Project Manager. The Department's on-site representative who is in responsible charge of monitoring the Contractor's daily activities including the inspection of the work and the estimation of payment quantities.

Project Number. A number assigned for convenience to identify the work covered in a project.

Project-Specific Special Provisions. See "Special Provisions".

Proposal. The offer of a bidder, on the prescribed form, to perform the stated construction work at the prices quoted.

Proposal Form. The prescribed form on which the offer of a bidder is to be submitted.

Proposal Guaranty. The cashier's check or bid bond furnished with a bid to assure that the bidder will enter into the contract if his offer is accepted.

Questionnaire. The specified forms on which the Contractor shall furnish required information as to his ability to perform and finance the work.

Ramp. A connecting roadway between two intersecting highways, generally at a highway separation, or a sloping driveway giving access to a highway.

Random Sample. A small part of a lot which is used to represent the whole, so chosen that each portion of the lot has an equal probability of being selected.

Record Plans. Reproductions of plans issued to bidders as noted in Article 105.02.

Recovery Time. Recovery time is defined as the time required, after the controlling item or items of work have been substantially damaged as a result of conditions and causes beyond the control of the Contractor and not due to his negligence or fault, to restore the work to the condition existing prior to such damage so that normal operations can be resumed on the contract pay items. Recovery time shall be the number of days required by the Contractor, working with normal forces, to restore the work as described above.

Region. A geographic subdivision of the State for the purpose of executing the Department's construction, maintenance, and administrative activities. There are five regions within the State. Each Region is further subdivided into two Areas.

Region Engineer. The engineer in charge of one of the five Regions of the State.

Reinforcement. Steel embedded in a rigid pavement slab and in concrete structures to resist tensile stresses and detrimental opening of cracks.

Repetition, Avoidance of. See Article 101.01(c).

Reprocessing. The renewal of an existing surface by scarifying, remixing with or without additional material, and relaying.

Resurfacing. The placing of one or more new courses on an existing surface.

Retainage. The Department will not withhold retainage. Retainage is the money belonging to the Contractor which was held by the Department conditioned on final completion and acceptance of all work in connection with a project or projects by the Contractor.

Right of Way. A general term denoting land, property or interest therein, usually in a strip, acquired for or devoted to transportation purposes.

Rigid Pavement. A pavement structure which distributes loads to the subgrade having as one course a Portland cement concrete slab of relatively high bending resistance.

Rigid Slab. A section of Portland cement concrete pavement bounded by joints and edges, designed for continuity of tensile stress.

Road. A general term denoting a public way for purposes of vehicular travel including the entire area within the right of way.

Roadbed. The graded portion of a highway within top and side slopes, prepared as a foundation for the pavement structure and shoulder. The top surface of the roadbed is the subgrade.

Roadbed Material. The material below the subgrade in cuts and embankments, and in embankment foundations extending to such depth as affects the support of the pavement structure.

Roadside. A general term denoting the area adjoining the outer edge of the roadway. Extensive areas between the roadways of a divided highway may also be considered roadside.

Roadside Improvement or Development. Those items necessary to the complete highway which provide for the preservation of landscape materials and features; the rehabilitation and protection against erosion of all areas disturbed by construction through seeding, sodding, mulching and the placing of other ground covers; such suitable planting and other improvements as may increase the effectiveness and enhance the appearance of the highway.

Roadway. The portion of the highway within the limits of construction. A highway may have more than one roadway.

Seal Coat. A thin treatment consisting of bituminous material, usually with cover aggregate, applied to a surface course. The term includes, but is not limited to, sand-seal, chip-seal, slurry seal, contrast seal and fog seal.

Shop Drawings. Fabrication plans for any part of the work including, but not limited to, precast concrete items, structural steel items, or other metal items, and connections thereof, which the Contractor is required to submit to the Engineer.

Sidewalk. That portion of the roadway primarily constructed for the use of pedestrians.

Skew Angle - Skew. The complement of the acute angle between two centerlines which cross; for a structure centerline, skew right means the right side of the structure is ahead; skew left means the left side of the structure is ahead.

Soil Survey. The exploration of the site of the proposed improvements by borings and tests or other methods and the preparations of soil profiles showing the significant layers, bedrock, water table, and other features.

Special Provisions. Additions and revisions to the Standard Specifications applicable to an individual project. Special Provisions include General Application Special Provisions and Project-Specific Special Provisions.

General Application Special Provisions. Additions and revisions to the Standard Specifications applicable to multiple projects. General Application Special Provisions shall prevail over Standard Specifications and plans.

Project-Specific Special Provisions. Additions and revisions to the Standard Specifications applicable to an individual project. Project Specific Special Provisions shall prevail over General Application Special Provisions, Standard Specifications, and plans.

Specifications. The compilation of provisions and requirements of prescribed work.

Speed Change Lane. An auxiliary lane, including tapered areas, primarily for the acceleration or deceleration of vehicles entering or leaving the through traffic lanes.

Stabilization. Modification of soils or aggregates by incorporating materials that will increase load bearing capacity, firmness, and resistance to weathering or displacement.

Special and Standard Highway Drawings. ALDOT's book of Standard and Special Drawings approved for repetitive use, showing details to be used where appropriate. This book is revised each year.

Standard Specifications. A book of specifications approved for general application and repetitive use.

State. The State of Alabama, the party of the first part to the contract, acting by and through the Transportation Director.

State Bridge Engineer. The representative of the Chief Engineer of the Department that is responsible for the supervision of the structural design and analysis of all of the Department's transportation-related structures.

State Construction Engineer. The representative of the Chief Engineer of the Department that is responsible for the general administration of the Department's contract construction work.

State Materials and Tests Engineer. The representative of the Chief Engineer of the Department that is responsible for the selection and control of all materials used in the construction of the Department's transportation structures.

Station. One hundred feet {one hundred meters} measured horizontally.

Street. A general term denoting a public way for purposes of vehicular travel, including the entire area within the right of way applicable to travel ways in urban areas.

Structures. Bridges, culverts, basins, drop inlets, retaining walls, cribbing, manholes, end walls, buildings, sewers, service pipes, underdrains, foundation drains and other features which may be encountered in the work and not otherwise classed herein.

Subbase. A layer or layers of specified or selected material or designed thickness placed on a subgrade to support a base or rigid pavement.

Subcontractor. An individual, partnership, firm, corporation or any acceptable combination thereof who has or have, with the written approval of the Department, contracted with the Contractor to execute and perform in his stead any part of the contract, as permitted by Article 108.01 of these Specifications. Material vendors as defined herein are not Subcontractors.

Subgrade. The top surface of the roadbed, upon which the pavement structure and shoulders are constructed.

Subgrade Treatment. Modification of roadbed material by stabilization.

Substructure. All of the part of the structure below the bearings of simple and continuous spans, skewbacks of arches and tops of footings of rigid frames; including backwalls, wingwalls, and wing protection railings.

Superintendent. The Contractor's authorized representative in responsible charge of the work.

Superstructure. All that part of a structure above, and including, the bearings of simple and continuous spans, skewbacks of arches and top of footings of rigid frames; excluding backwalls, wingwalls, and wing protection railings.

Supplemental Agreement. A written agreement with the Contractor covering changes in the plans, specifications, or quantities or any combination thereof, within the scope of the contract and establishing the basis of payment and time adjustments for the work affected by the changes.

Surety. The corporation, partnership or individual other than the Contractor executing a bond furnished by the Contractor, licensed under the laws of Alabama.

Surface. One or more layers of a material designed to accommodate the traffic load, the top layer of which resists skidding, traffic abrasion and the disintegrating effects of climate. The top layer is generally called the wearing layer and the lower layer the binder layer.

Surface Treatment. One or more applications of bituminous material and cover aggregate or thin plant mix on an old pavement or any element of a new pavement structure.

Tack Coat. An application of bituminous material to an existing surface to provide bond with a superimposed course.

Temporary Structure. Any structure required to maintain traffic during construction of the work, which will be dismantled if required when the work is completed.

Through Highway. Every highway or portion thereof on which vehicular traffic is given preferential right of way, and at the entrances to which vehicular traffic from intersecting highways is required by law to yield right of way to vehicles on such through highway in obedience to either a stop sign or a yield sign, when such signs are erected.

Through Street. Every street or portion thereof on which vehicular traffic is given preferential right of way, and at the entrances to which vehicular traffic from intersecting streets is required by law to yield right of way to vehicles on such through highway in obedience to either a stop sign or a yield sign, when such signs are erected.

Tie Bar. A deformed steel bar or connector imbedded in the concrete across a joint to prevent separation of abutting slabs.

Traffic Lane. The portion of a traveled way for movement of a single line of vehicles.

Transportation Director. See "Director".

Traveled Way. The portion of the roadway for the movement of vehicles, exclusive of shoulders and auxiliary lanes.

Typical Section. That cross section established by the plans which represents in general the lines to which the Contractor shall work in the execution of his contract.

Work (The Work). Work shall mean the furnishing of all labor, materials, equipment, and other incidentals necessary or convenient to the successful completion of the project and the carrying out of all duties and obligations imposed by the contract.

Work Performed. The dollar amount of work that has been completed at a point in time when progress payments (monthly estimate payments) will be made. Work Performed is the payment for the designated physical construction work that has been completed and accepted for payment. Work Performed will not include the following:

Payments for extra work done on a Force Account basis
Payments that were, or will be based on the progress and quality of the construction
Payments that were, or will be made for material price adjustments, fuels, and stored or unused materials

Working Day (Daytime Work). Any Calendar Day from midnight to midnight, exclusive of Saturdays and Legal Holidays (as defined herein), on which the Contractor could proceed with construction operations for a period of six hours or more with the normal working forces engaged in performing work on the controlling item or items of work, which normally would be in progress at that time, will be classified as a working day. Saturdays and Legal Holidays on which the Contractor elects to work for a period of four hours or more will be classified as a working day.

Working Day (Nighttime Work). (Where nighttime work is required or allowed by the Engineer.) Any 24-hour period from noon to noon, on which the Contractor could proceed with night-time construction operations for a period of six hours or more with the normal working forces engaged in performing work on the controlling item or items of work, which normally would be in progress at that time, will be classified as a working day. Saturdays and Legal Holidays on which the Contractor elects to work for a period of four hours or more will be classified as a working day.

Working Drawings. Erection plans, falsework plans, framework plans, cofferdam plans, or any other supplementary plans or similar data which the Contractor is required to submit to the Engineer.

(c) General Terms.

1. "NO DIRECT PAYMENT", "WITHOUT EXTRA COMPENSATION", AND "SUBSIDIARY OBLIGATION".

   Compensation shall be included in other items of work (other pay items) for work where it is shown that "no direct payment" will be made for the work, or that the work shall be done "without extra compensation", or the work shall be a "subsidiary obligation" of other items of work.

2. AVOIDANCE OF REPETITION.

   Wherever the terms "contemplated", or "required", "directed", "authorized", "considered necessary", "permitted", "approved". "suitable", "unacceptable", "designated", or terms of like import are used in these Specifications, they shall be construed to mean "to" or "by the Engineer" or "Director", unless the contract or context clearly indicates otherwise.

SECTION 102
PROPOSAL REQUIREMENTS AND CONDITIONS

102.01 Notice to Contractors (Advertisement).

(a) General.

Bids will be invited in a "Notice to Contractors" advertisement. The advertisement will contain the date, time, and place of opening bids; a description of the work; contract time; a stipulation as to the character and the amount of the proposal guaranty; and instructions to the bidders for obtaining access to plans and specifications.

(b) Adjustment of Bid Quantities.

The quantities shown in the "Notice to Contractors" are to be considered as approximate only and may be amended in the proposal to include additional quantities or additional items, or to decrease quantities or to exclude items of work before bids are to be received. This listing of quantities and pay items is to advise prospective bidders informally as to the type of work and approximate quantities involved.

102.02 Qualification of Bidders.

(a) Prequalification.

Proposal forms will be issued only to prospective bidders who have qualified with the Department and have a valid certification of qualification as required by State law. All applicants for qualification shall submit, under Oath, a complete confidential statement, equipment questionnaire, and experience questionnaire on forms that will be furnished by the Department upon request. To ensure sufficient time for consideration, the applicant shall properly complete and submit the forms at least 14 calendar days prior to the date of opening bids on which the applicant desires to submit proposals. Forms received at a later date will be considered whenever practicable.

If the applicant is a corporation organized in a State other than Alabama, it shall furnish a certificate from the Secretary of State showing that it is qualified to transact business in Alabama. A bid for a 100 % State funded project will not be accepted from a corporation organized in another State if the bidder does not submit a valid Certificate of Existence issued by the Alabama Secretary of State. A bid will be accepted from a corporation organized in another State for a federally funded project but award of the contract is contingent upon receipt of the Certificate of Existence from the Alabama Secretary of State.

A prospective bidder will not be prequalified who has a corporate officer, director, or principal owner who is a corporate officer, director, or owner of another person which is presently disqualified by the Department. A prospective bidder will also not be prequalified who is an affiliate of a person that is presently disqualified by the Department.

For the purposes of this Section, the following definitions shall apply:

1. An "Affiliate" shall be defined as any
2. Person that controls, is controlled by, or is under common control with another person.
3. A "Person" shall be defined as an individual, a corporation, a partnership, an association, a joint stock company, a trust, or any unincorporated organization.
4. "Control" shall be defined as the ownership, directly or indirectly, of 10 % or more of the voting securities of a person or if the person is not a corporation, an ownership interest, directly or indirectly of 10 % or more of the person.

(b) Disqualification.

The Department reserves the right to disqualify or refuse to issue a proposal to a prospective bidder for the following reasons:

1. Lack of competency or adequate machinery, plant or other equipment as revealed by the required financial statement and experience questionnaires.
2. Uncompleted work which, in the judgment of the Department, could hinder or prevent the prompt completion of additional work if awarded.
3. Failure to pay or satisfactorily settle all bills due for labor and material on contracts in force at the time of issuance of proposals.
4. Failure to comply with any prequalification requirements of the Department.
5. Default, as defined in Article 108.12, under a previous contract.
6. Actions in bidding or subcontracting which have the effect of limiting competition and violating the competitive bid process, or if any partner, association member, corporate official or individual owner, respectively, of any bidder submitting a bid has been convicted or entered a guilty plea in any legal jurisdiction of the United States or any of the various States, of Federal or State crimes that involve the restraint of trade or limiting competition in any manner.
7. Suspension or debarment by the Federal Highway Administration of the prospective bidder or any partner, association member, corporate official or individual owner of the bidder.
8. Upon issuance to the contractor of two warning letters for DBE violations during any successive 24-month period. DBE violations apply on a companywide basis and not for a particular project.
9. When the prospective bidder was the prime contractor and did not use his company's forces to perform at least 30 % of the work.
10. Disqualification for unsatisfactory progress as defined in Subarticle 108.04(e).
11. Being an affiliate of a person who is disqualified.
12. Becomes insolvent or commits any act of insolvency.

13. Failure to reimburse the Department in accordance with the requirements for payment given in these specifications, notwithstanding acceptance of the project or maintenance thereof.

Disqualification for reasons 1 through 6, 8 and 9 will be for an indefinite period of time. The status of disqualification will be reviewed if requested in writing by the disqualified firm. Any subsequent review of the status of disqualification will not be done until six months after the preceding review.

Disqualification for reason 7 will be for an indefinite period of time, with a minimum time of disqualification equal to the period of time of suspension or debarment by the Federal Highway Administration. After the minimum time of disqualification has passed, the status of disqualification will be reviewed if requested in writing by the disqualified firm. Any subsequent review of the status of disqualification will not be done until six months after the preceding review.

Disqualification for reason 10 will be removed immediately upon receipt of proof that the progress of the work is acceptable or that the project has been completed.

Disqualification for reason 11 will remain in effect until the prospective bidder causing the disqualification of the affiliate has been requalified.

Disqualification for reason 12 will remain in effect until the Contractor and Surety provide documentation to the satisfaction of the ALDOT that the Contractor's solvency has been restored.

Disqualification for reason 13 will be removed immediately upon receipt of satisfactory payment from the Contractor.

Disqualification applies to bidding as a prime contractor or performing work in any role or capacity on an ALDOT project.

(c) Requalification.

If a prospective bidder is disqualified from bidding for reasons 1 through 7, 9 and 12 given in Subarticle 102.02(b), it will be required to again prequalify under the provisions of Subarticle 102.02(a) above.

When requalified, the qualification will be issued subject to continued examination and evaluation of the Contractor's performance. The Contractor will be in probationary status for a period of one year following the requalification. If, during the period of probation, the Contractor is disqualified under any of the provisions of these Specifications, the Department may suspend the Contractor's right to requalify for a minimum period of one year.

102.03 Contents of Proposal Form.

(a) General.

The Department will furnish bidders a blank proposal form showing the location and description of the work contemplated, the approximate estimate of the various quantities of the pay items of the work to be performed and materials to be furnished, and the amount of the proposal guaranty. The proposal form may also contain "Special Provisions" and requirements that vary from, or are not included in, the Alabama Department of Transportation Standard Specifications. All papers bound with or attached to the proposal form are a necessary part thereof and must not be detached or altered.

The plans, specifications, and other documents designated in the proposal form shall be a part of the proposal whether attached or not. The prospective bidder shall pay the Department the fee set for each copy of the proposal form and each set of plans.

(b) Corrections.

Corrections and minor changes in the proposal form or plans may be put into effect by facsimile, certified letter, express type mail, or other computer media from the Office Engineer Bureau, notifying all prospective bidders to whom proposal forms have been previously issued.

102.04 Interpretation of Quantities in Bid Schedule.

The quantities appearing in the bid schedule are approximate only and are prepared for the comparison of bids. Payment to the Contractor will be made only for the actual quantities of work performed and accepted, or materials furnished, in accordance with the contract. The scheduled quantities or work to be done and materials to be furnished may each be increased, decreased, or omitted as provided herein.

102.05 Examination of Plans, Specifications, Special Provisions, and Site of Work.

The bidder is expected to carefully examine the site of the proposed work, the general and local conditions, and the requirements of the contract documents before submitting a proposal.

If boring logs, foundation reports, and other records of subsurface investigations were obtained by the State, this information is intended for State design and estimating purposes only. However, it is made available to bidders upon request so that they may have access to the identical subsurface information available to the State. The bidder shall examine this information and make their own interpretation as to the nature and extent of material to be excavated, graded, bored, or driven through. The Department does not guarantee the amount or nature of the material which may be encountered. This information shall not be a substitute for personal investigation, interpretations and judgment of the bidders.

The submittal of a proposal shall be an acknowledgment that the bidder has made these examinations as required by this Article. Adjustments or compensation will not be allowed for losses caused by failure to comply with this requirement.

The State disclaims responsibility and liability for any opinions, conclusions, interpretations, or deductions that may be expressed or implied in any of the information presented or made available to bidders. The bidder shall be fully responsible for interpretations and conclusions made from all available information.

102.06 Preparation of Proposal.

(a) Proposal Form.

The bidder's proposal must be submitted by either one of the following procedures:

1. The submittal of the complete original proposal form, the bid item sheets generated by the computer file furnished by the Department, and a bidder furnished digital storage media containing the computer file downloaded from the Department's website with the bidder's prices or;
2. The submittal of the complete original proposal form directly to the Department and the submittal of the bid through the Department's approved Internet Bidding Service Provider.

Proposal forms are numbered serially and are not transferable.

Unless otherwise provided in the proposal, joint venturers may submit a proposal for a joint venture of qualified bidders on a proposal form issued to one of them, provided each venturer has taken out a proposal and provided the proposal is signed by each co-venturer. If the joint venturer chooses to submit a bid utilizing the Department's approved Internet Bidding Service Provider the joint venturer must request and receive approval for the joint venture. The joint venturer will be assigned a contractor identification number prior to the submittal of a bid.

(b) Details.

All bids shall be submitted using a computer bid system prescribed by the Department, via either bidder furnished digital storage media (CD-ROM, DVD-ROM, or USB flash drive), or the Department's approved Internet Bidding Service Provider. Bids submitted using any other form, format, or means will be rejected. The digital storage media used to submit the bid shall become the property of the State of Alabama.

Where alternate designs are provided by the plans and proposal, the bidder shall enter prices only on the items for the design alternate that will be most economical for the bidder to construct, and other bid items that will be common for all alternates.

If any item on the proposal form permits a choice between alternate specified types of materials, the bidder shall indicate by a check mark the type of material the bidder proposes to use. If more than one type or none is checked, the Department will make the selection.

Any interlineation, erasure, or other alteration of a figure shall be initialed by the signer of the proposal. The Department will check the extension of each item given in the proposal and correct all errors and discrepancies. In case of a discrepancy between a unit bid price and the extension amount, the unit price shall govern. The sum of the extension amounts will be the contract bid price.

A pay item may be shown with a maximum allowable amount for the bid. The bidder shall enter an amount for the bid that is equal to or less than the maximum allowable amount. If the bid entered is greater than the maximum allowable amount the Department will adjust the bid price to the maximum allowable amount for that item and recalculate the total bid amount.

A pay item may be shown with a minimum required amount for the bid. The bidder shall enter an amount for the bid that is equal to or greater than the minimum required amount. If the bid entered is less than the minimum required amount the Department will adjust the bid price to the minimum required amount for that item and recalculate the total bid amount.

(c) Signing.

The bidder's proposal must be signed with ink by the individual, by one or more members of the partnership, by one or more members or officers of each firm representing a joint venture, or by one or more officers of a corporation, or by an agent of the Contractor legally qualified and acceptable to the State. If the proposal is made by an individual, the individual's name must be shown; by a partnership, the name of each partnership member must be shown; as a joint venture, the name of each member or officer of the firms represented by the joint venture must be shown; by a corporation, the name of the corporation and of its corporate officials must be shown. Each bidder submitting a bid utilizing the Department's approved Internet Bidding Service Provider agrees that its digital signature constitutes an original signature.

The proposal bid bond, if bid bond is tendered, shall be properly signed by the bidder and the surety.

(d) Collusion.

Bidders will be required to execute a collusion affidavit conforming to the requirements of the laws and regulations cited in Article 107.05. If prior to the award the low bidder fails to execute the collusion affidavit the bid will be rejected and the bid bond will be forfeited. If there is any reason for believing that collusion exists among the bidders, any or all proposals may be rejected, and those participating in such collusion may be barred from submitting bids on the same or other work with the Department until they have been reinstated as a qualified bidder.

Only the affidavit form provided in the proposal will be acceptable.

(e) Computer Bidding.

The bidder shall use a bidding software program prescribed by the Department. It is the bidder's responsibility to gain access to computer equipment that will run the prescribed software program.

The bidder may choose to download the computer file and any addenda from the Department's website or the bidder may choose to utilize the Department's approved Internet Bidding Service Provider to access the computer file and addenda. If the bidder chooses to download the computer file from the Department's website and submit the bid using a digital storage medium, then the software program prescribed by the Department shall be used to prepare the bid and to print the official bid item sheets for submittal with the proposal form.

If the bidder chooses to utilize internet bidding, the computer file is available at the Department's approved Internet Bidding Service Provider's website.

The only entries permitted into the computer program when preparing the bid will be the unit or lump sum prices for items bid. The program will perform all extensions of the unit or lump sum prices, calculate the total bid, and print a complete set of bid item sheets including the total bid price and bid item signature sheet. Each bid item sheet will contain a check identification "ID" located in the bottom right corner of each bid item sheet corresponding to the check ID in the computer bid file.

Bid item sheets generated from the computer program shall be printed on 8.5 x 11 inch {216 mm x 279 mm} paper.

This set of bid item sheets, generated from the software program prescribed by the Department, along with a complete proposal package, will constitute the official bid. The computer-generated bid item signature sheet and proposal shall be properly signed and delivered to the Department in accordance with Article 102.06(c), Signing, and Article 102.10, Delivery of Proposals.

Only bid item sheets printed from a software program prescribed by the Department will be accepted for the official bid. Failure to use and submit these bid item sheets will result in the bid being rejected. Bidders who choose to utilize internet bidding shall submit the bid as a computer file, including a digital signature, through the Department's approved Internet Bidding Service Provider.

All provisions of Subarticles (a) through (d) of this Article will apply to the preparation of bids that are submitted on computer program generated bid item sheets. Any necessary changes to entries on the computer program generated bid item sheets shall be made in accordance with Subarticle (b) of this Article.

A digital storage medium containing the computer file downloaded from the Department's website with the bidder's prices shall be submitted with the proposal unless the bidder chooses to use the Department's approved Internet Bidding Service Provider in which case the submittal of a digital storage medium is not required.

In case of a discrepancy between the unit or lump sum prices submitted on the program printed bid item sheets and those contained in the computer file returned to the Department, the unit or lump sum prices submitted on the program printed bid item sheets shall prevail in all cases.

Failure to submit a properly signed bid item signature sheet shall result in the bid being rejected.

Failure to submit a bid item sheet(s), other than the bid item signature sheet, will result in the bid being considered irregular in accordance with Article 102.07(a). In the event a bid item sheet is missing from the proposal, the Department may replace this sheet with a copy produced from the computer file submitted with the proposal.

The Department is not responsible for delay in completion of, or failure to timely submit, a bid due to an alleged website failure or failure of any service associated with the Department's approved Internet Bidding Service Provider.

102.07 Irregular Proposals.

(a) General.

Proposals will be considered irregular and may be rejected if they contain any omissions, alteration of form, additions not called for, incomplete bids (includes failure to enter a unit bid price on a bid item or, in the case of an alternate, the alternate being bid by the Contractor), interlineations, erasures or alterations not initialed by the person signing the proposal, inconsistent proposal control numbers on each computer bid item sheet and signature sheet, or other irregularities of any kind. Proposals may be rejected at any time prior to the execution of the contract by the Director.

Any bidder using the same or different names for submitting more than one proposal upon any project will be disqualified from further consideration on that project. Evidence that any bidder is interested, as a principal, in more than one proposal for work contemplated (for example bidding in a partnership, as a joint partnership or association, and as a partnership, association, or individuals) will cause the rejection of any such proposal. A bidder, however, may submit a proposal as principal and as a Subcontractor to some other principal, or may submit a proposal as a Subcontractor to as many other principals as he desires, and by so doing will not be liable to disqualification in the intent of these Specifications.

(b) Unbalanced Bidding.

In order that no party of the contract will be financially hurt over changes in the estimated quantities, a proposal may be rejected if any of the unit prices are obviously unbalanced. The Department will decide whether any unit prices are unbalanced either excessively above or below a reasonable cost analysis value determined by the Engineer, particularly if these unbalanced amounts are substantial and contrary to the interest of the Department.

102.08 Combination Bids.

(a) Combination Bidding

1. Bidder's Statement of Intent to Submit a Combination Bid.
   A bid will be considered as a "combination bid" for two or more projects if the bidder notifies the Department in writing of the intent to submit a combination bid. The bidder shall submit a written statement that the bid will be either an "All or None" Combination Bid, a "Reduction in Unit Price" Combination Bid, a "Total Dollar Amount" Combination Bid or a "Total Number of Contracts" Combination Bid.
2. "All or None" Combination Bid.
   The bidder shall clearly designate the proposals that are being combined in a bid that is being submitted as an "All or None" combination bid. The Department will evaluate all bids on these proposals and make awards based on the bids that are most advantageous to the State.
3. "Reduction in Unit Price" Combination Bid.
   The bidder shall clearly designate the proposals that are being combined in a bid that is being submitted as a "Reduction in Unit Price" combination bid. The bidder shall clearly stipulate the reduction that will be made in the unit price of one or more of the items in any or all of the proposals if awarded the combination. The bidder will not be permitted to make a reduction in any unit price that is fixed by the Department. The Department will select the individual or combination bids that are most advantageous to the State.
4. "Total Dollar Amount" Combination Bid.
   The bidder shall clearly designate the proposals that are being combined in a bid that is being submitted as the "Total Dollar Amount" combination bid. A bidder shall clearly stipulate that the bid is for designated projects but requests to be awarded work that will not exceed the designated total dollar amount. The Department will select the proposals that are most advantageous to the Department within the designated total dollar amount.

5. "Total Number of Contracts" Combination Bid.

The bidder shall clearly designate the proposals that are being combined in a bid that is being submitted as a "Total Number of Contracts" combination bid. A bidder shall clearly stipulate that the bid is for designated projects but requests to be awarded work that will not exceed the designated number of contracts. The Department will select the proposals that are most advantageous to the Department within the designated total number of contracts.

6. Submittal of Written Statement of Notification of Combination Bid.

Regardless of the form of the submittal of the bid (paper, computer printout, Internet, etc.) the bidder shall notify the Department in writing of a bid that is being submitted as a combination bid. The written notification must be received in the office of the Department's Office Engineer Assistant Bureau Chief for Plans and Proposals prior to the opening of bids for a bid to be evaluated as a combination bid. The written notification shall be enclosed in the sealed bid package envelope or transmitted by facsimile to the number shown on the proposal cover sheet.

The Contractor shall be responsible for verifying that the facsimile has been received by the Department prior to the opening of bids. The letter of notification of a combination bid shall:

a. Be addressed to the Transportation Director
b. Describe the type of combination bid ("All or None", "Reduction in Unit Price", etc.)
c. Be dated no later than the date set for bid opening
d. Be written on the bidder's letterhead
e. Be signed by a person authorized to sign contracts for the bidder
f. Contain a list of the project numbers included in the proposed combination bid

7. Unacceptable Combination Bids.

A combination bid in which the bidder proposes that a lump sum be deducted from the final estimate is unacceptable. A combination bid in which the bidder proposes that a reduction in prices be made on a percentage basis is unacceptable. Unacceptable proposals for combination bids will be considered irregular by the Department and will be rejected.

(b) City and County Financed Projects.

Combination bids will not be accepted on any project or projects wholly or partially financed by a city unless all the projects in the combination bid are city financed projects located in the same city.

Combination bids will not be accepted on any project or projects wholly or partially financed by a county unless all the projects in the combination bid are county financed projects located in the same county.

102.09 Proposal Guaranty.

No proposal will be considered unless accompanied by a cashier's check drawn on an Alabama bank or a bid bond of the prescribed form made payable to the Alabama Department of Transportation in the amount indicated in the Notice to Contractors. The cashier's check shall have the name of the company submitting the bid and the project number on the check.

102.10 Delivery of Proposals.

Each proposal for each contract shall be placed, together with the proposal guaranty, in a sealed envelope on the outside of which is written in large letters "Proposals for Highway Work" and so marked as to indicate the project number, the county or counties in which the work is located and the name of the bidder. Proposals will be received in the office of the Department's Office Engineer Assistant Bureau Chief for Plans and Proposals at the Alabama Department of Transportation Building in Montgomery, Alabama, unless otherwise provided, until the hour and date set in the notice to Contractors for the opening thereof. No proposal will be considered which has not been received prior to the time and date set for the opening of bids. Proposals received after that time will be returned. For bidders who choose to use the Department's approved Internet Bidding Service Provider the preceding is applicable with the exception that the bid sheet component of the proposal will be held at the Department approved Internet Bidding Service Provider's secure location. This bid sheet will be transmitted to the Department at the time and date specified in the Notice to Contractors.

102.11 Withdrawal or Revision of Proposals.

A bidder may withdraw or revise a proposal after it has been deposited with the Department provided the request for such is received by the Department in writing or by telegram before the time set for opening proposals. Prior to the time set for opening proposals, a bidder who chooses to use the Department's approved Internet Bidding Service Provider may withdraw and revise a bid an unlimited

number of times without notification or approval by the Department. No proposal can be withdrawn, modified, or corrected after the time set for opening such proposals.

102.12 Public Opening of Proposals.

Proposals will be publicly opened and bid totals read aloud at the place, time, and date indicated on the "Notice to Contractors" advertisement. Bidders or their authorized agents are invited to be present.

102.13 Multiple Bids.

In the event that a bidder submits a bid utilizing a digital storage medium and paper submittal and also submits a bid for that proposal utilizing the Department's approved Internet Bidding Service Provider, the internet bid will be accepted as the sole and exclusive bid.

102.14 Familiarity with Laws and Ordinances.

(a) General.

Bidders shall familiarize themselves with and shall comply with all Federal and State laws and local laws, ordinances, and regulations which may directly or indirectly affect the work or its prosecution, persons engaged in or employed on the work, and the equipment and tools used in the work. No adjustments or compensation will be allowed for losses caused by failure to comply with this requirement.

1. Contractor's Licensing for 100% State Funded Projects.

Each bidder shall enter the General Contractors license number issued by the State Licensing Board on each submitted bid. Space is provided on the cover sheet of the proposal for the license number. Failure to enter the bidder's license number on the bid submittal will result in the rejection of the bid.

2. Contractor's Licensing for Projects Funded with Federal Monies.

Prior to being awarded a contract, bidders on projects that are partially or wholly funded with federal monies shall submit a copy of their license issued by the State Licensing Board for General Contractors. Bidders may satisfy this requirement by placing a copy of the license into the proposal of each submitted bid.

3. Bidder's Responsibility.

It is the bidder's responsibility to provide proof of being licensed by the State Licensing Board for General Contractors. Failure to do so may result in the rejection of a bid.

4. Codes.

Attention is directed to Titles 23 and 39, Code of Alabama, 1975, also Title 23, U.S. Code, and amendments thereto to the date of the contract.

(b) Labor Rates.

Attention is called to the fact that the wage rates listed in the proposal are minimum required rates. Bidders therefore should investigate and determine the prevailing local wage rates which for certain classes may be higher than the listed minimum rates. Under no condition shall the Contractor pay less than the listed minimum rate, but it may be necessary in some cases to pay more to secure the labor.

The bidders should investigate, and the Contractor shall abide by any orders issued by the Wage Adjustment Board or any other Federal agency having jurisdiction over wage rates.

102.15 Material Guarantee.

The successful bidder may be required to furnish a complete statement of the origin, composition, and manufacture of any or all materials to be used in the construction of the work together with samples, which samples may be subjected to the tests provided for in these specifications to determine their quality and fitness for the work.

SECTION 105
CONTROL OF WORK

105.01 Authority of the Engineer.

The Engineer will decide all questions which may arise as to the quality and acceptability of materials furnished and work performed and as to the rate of progress of the work; all questions which may arise as to the interpretation of the plans and specifications; all questions as to the acceptable fulfillment of the contract on the part of the Contractor.

The Engineer shall have the authority to withhold further payment or to suspend the work wholly or in part due to failure of the Contractor to correct conditions unsafe for the workmen or the general public; failure to carry out provisions of the contract; failure to carry out orders; for such periods as he

may deem necessary due to unsuitable weather; for conditions unsuitable for prosecution of the work; or for any other condition or reason deemed to be in the public interest.

105.02 Plans and Drawings.

(a) Plans.

Each sheet of the record set of plans, except cross section sheets, will be stamped "Record Plans", and will be signed and dated by a representative of the Department. The Contractor will be furnished a copy of the record set of plans. The Contractor shall have at least one set of construction plans available on the construction site whenever work in being performed.

The general details of construction, and the location where the work is required, will be shown on the plans. The basis of payment for construction will also be shown on the plans.

Roadway plans will have a title sheet, alignment, profile, typical cross section, and other information applicable to the work. Details will also be given for highway lighting, signals, utility relocation, and other work associated with roadway construction. Structural plans (bridges, culverts, pipes, retaining walls, etc.) may be included in the roadway plans.

The Contractor shall supplement the construction plans with drawings for fabrication (Shop Drawings) and construction methods (Working Drawings). Shop drawings and working drawings shall be submitted as a part of the verification that the materials and methods selected by the Contractor for fabrication and construction will be in accordance with the requirements given in the contract and will not be detrimental to the quality of completed roadway facility.

(b) Shop Drawings.

1. Preparation of Drawings.

When shown as a contract requirement, the Contractor shall prepare and submit shop drawings for approval. Shop drawings shall be the proposed fabrication details for structural members and components.

Shop drawings for structural steel members and components shall be prepared on 22 in x 34 in size plan sheets.

Shop drawings for structural members other than structural steel shall be prepared on 22 in x 34 in size plan sheets or on 11 in x 17 in sheets.

The Contractor shall carefully verify and shall become fully responsible for the correctness of all dimensions other than the principal controlling dimensions shown on the plans. The Contractor shall immediately advise the Engineer of any errors or discrepancies that are found during the preparation of the drawings.

All drawings shall be clear and complete. The signature of the preparer shall be shown on all drawings.

2. Submittal and Review

Shop drawings shall be submitted by the Contractor by either e-mail or physical copy. Shop drawings for structural members and components for bridge structures shall be submitted to the State Bridge Engineer for review and approval. A completed ALDOT Bridge Bureau Form BBF-16, in PDF format for e-mail, shall accompany each submittal detailing the content submitted. Incomplete transmittals may cause rejection of the entire submittal.

Ten business days shall be allowed for each review of each set of drawings containing five sheets or less and two business days shall be allowed for each sheet of each set of drawings containing more than five sheets. If the review is not completed within the number of days allowed, and the delay is not the fault of the Contractor, the delay will be considered for an extension of contract time.

a. E-Mail Submittals

Shop drawings shall be submitted to the State Bridge Engineer at BridgeShopDwgs@dot.state.al.us. For each e-mail submittal, the subject line shall include the project number, county or counties and type of submittal (e.g., structural steel shop drawings, prestressed girder shop drawings, etc.). A complete PDF copy shall be submitted for review. If necessary, a PDF copy of the drawings with comments noted in red will be e-mailed to the Contractor. After needed corrections are made, an updated copy of the shop drawings shall be submitted by the Contractor to the State Bridge Engineer for verification and noting further comments if necessary. This cycle will be repeated until no further comments are noted.

b. Physical Copy Submittals.

Two paper copies of the shop drawings shall be submitted for review. If necessary, one

copy of the drawings will be returned to the Contractor with comments noted in red. After needed corrections are made, two copies of the updated drawings shall be submitted to the State Bridge Engineer for verification and noting further comments if necessary. This cycle will be repeated until no comments are noted.

3. Approval of Drawings

a. E-Mail Submittals.

When the drawings have no further comments, the State Bridge Engineer will electronically stamp the drawings "Approved" along with the current date. The State Bridge Engineer will e-mail a copy of the approved drawings to the Contractor.

b. Physical Copy Submittals.

When the drawings have no further comments, the State Bridge Engineer will physically stamp the drawings "Approved" along with the current date. The State Bridge Engineer will return by mail one complete copy to the Contractor.

4. Revisions after Approval

a. Electronic Mail Submittals.

All revisions to the previously approved shop drawings shall be flagged. A summary of revisions shall be included on the affected sheet(s) and dated. The revised drawings shall be emailed to the State Bridge Engineer for review and approval and will be subject to the review cycles as noted in item 2A above. For each e-mail submittal, the subject line shall include the project number, county or counties and type of submittal (e.g., structural steel shop drawings, prestressed girder shop drawings, etc.). When the revised drawings have no further comments, the State Bridge Engineer will electronically stamp the revised drawings "Approved, Revised" along with the revision number and current date. The revised drawings will be e-mailed to the Contractor.

b. Physical Copy Submittals.

All revisions to the previously approved shop drawings shall be flagged. A summary of revisions shall be included on the affected sheet(s) and dated. Two paper copies of the revised shop drawings shall be submitted to the State Bridge Engineer for review and approval and will be subject to the review cycles noted in item 2B above. When the drawings have no further comments, the State Bridge Engineer will physically stamp the revised drawings "Approved, Revised" along with the revision number current date. The revised drawings will be returned by mail to the Contractor.

5. Responsibility

The approval of drawings will not release the Contractor from being solely and fully responsible for the content and accuracy of the drawings. Extra work that may result from omissions and errors in the shop drawings shall be done without additional compensation.

6. Beginning Fabrication upon Approval.

Fabrication shawsdS61ll not begin until the drawings have been approved. There will be no compensation for, or acceptance of structural members and components that are fabricated prior to approval of the drawings.

(c) Working Drawings.

1. Preparation of Drawings.

The Contractor shall prepare and submit working drawings to supplement the plans. Working drawings shall be prepared to provide a complete illustration of the construction methods and materials proposed for use by the Contractor. Design calculations shall be submitted with the drawings. The signature, seal, and date of signature shall be placed on all details and design calculations by a Professional Engineer that is licensed in the State of Alabama and not employed by the ALDOT.

Working drawings and design calculations shall be submitted for:

a. Cofferdams, sheeting and shoring near a railroad track
b. Cofferdams where "cofferdam and pumping" is required
c. Structural steel girder erection plans for continuous span bridges
d. Temporary bracing to provide stability for bridge girders
e. Stay-in-place bridge deck forms
f. Falsework for bridge deck overhangs (portion of deck outside of exterior girders)
g. Falsework for bridge bent caps
h. Proposed temporary bridges

i. Temporary steel sheet pile walls
j. Falsework for the support of the top slab of cast in place concrete culverts
k. Proposed placement of cranes on bridges
l. Construction loads on bridges
m. Box Culverts
n. Retaining Walls
o. Soil Nail Walls
p. Soldier Pile Retaining Walls
q. Aggregate Foundations
r. Cable Guardrails
s. Overhead Roadway Sign Structures
t. Traffic Signal Poles

Working drawings and design calculations shall be submitted for any other construction process where noted on the plans or shown to be required in these specifications.

The Contractor shall be fully responsible for all of the costs of unacceptable construction work whether or not working drawings and design calculations are submitted for the construction procedures and temporary materials that affect the quality of construction.

2. Submittal.

Working drawings shall be submitted by the Contractor by either e-mail or physical copy to the State Construction Engineer for review and approval. A transmittal letter shall accompany each submittal detailing the content submitted. At a minimum, the transmittal letter shall indicate the Contractor's contact information including a valid e-mail address, the ALDOT project number, county or counties, project description, name and address of the preparer of the working drawings and details of the working drawings provided in the submittal. Incomplete transmittals may cause rejection of the entire submittal. The drawings and calculations shall be submitted well in advance of the point in time when the work will be performed.

Working drawings for work on or over the railroad right-of-way must have the approval of the railroad company before the work will be allowed to begin. The Contractor shall make the submittal far enough in advance of the need for the work to begin so that the railroad company will have ample time to review the drawings and design calculations.

a. E-Mail submittals.

Working drawings and calculations shall be submitted to the State Construction Engineer at ConstructionWorkDwgs@dot.state.al.us. For each e-mail submittal, the subject line shall include the project number, county or counties and type of submittal (e.g., Falsework for Bridge Deck Overhangs, Stay-in-Place Bridge Deck Forms, etc.). A complete PDF copy shall be submitted for review. If necessary, a PDF copy of the drawings with comments noted in red will be e-mailed to the Contractor. After needed corrections are made, an updated copy of the working drawings shall be submitted by the Contractor to the State Construction Engineer for verification and noting further comments if necessary. This cycle will be repeated until no further comments are noted.

b. Physical Copy submittals.

Two paper copies of the working drawings and calculations shall be submitted to the State Construction Engineer for review. If necessary, a copy of the drawings and calculations will be returned to the Contractor with comments noted in red. After needed corrections are made, two copies of the updated drawings and calculations shall be submitted to the State Construction Engineer for verification and noting further comments if necessary. This cycle will be repeated until no comments are noted.

Working drawings and design calculations that have been submitted and distributed to ALDOT construction personnel by the State Construction Engineer may be resubmitted for another project provided all requirements are identical in nature to the previous project. The resubmittal of working drawings and calculations shall be signed, sealed and dated again by the Professional Engineer that originally sealed the drawings. The Professional Engineer shall clearly indicate on the drawings and calculations that the resubmittal is applicable to the new work.

3. Distribution.

The drawings and design calculations will be checked for completeness. The drawings will be distributed to ALDOT construction personnel for inspection of the work. If submitted through electronic mail, the Approval for distribution will be given to the Contractor through electronic PDF by the Engineer, indicated by an electronic stamp. If submitted through physical copies, the

Approval for distribution will be given to the Contractor through paper copies by the Engineer, indicated by a physical stamp. The distribution of the drawings will not release the Contractor and the Professional Engineer from being solely and fully responsible for the accuracy and adequacy of the drawings. Extra work that may result from errors in the working drawings and design calculations shall be done without additional compensation.

4. Beginning Work Shown on Working Drawings.

Construction shall not be performed on any item of work for which Working Drawings are required until the Engineer receives the drawings for inspection of the work. There will be no compensation for work that is performed prior to the point in time that ALDOT personnel have the drawings for use in inspecting the construction work.

(d) Submittals for Traffic Design

1. Preparation of Submittals.

Submittals shall be prepared to provide a complete illustration of materials proposed for use by the Contractor. The construction methods shall also be prepared and submitted for review when called for in the plans and/or the related Section specifications.

The Contractor shall prepare and submit material and equipment listings for Traffic Design related pay 3 items. These material and equipment listings (a.k.a., material submittals) are required for Traffic Design pay items which consist of the following specification sections, along with their related material specifications:

a. Section 729 “Intelligent Transportation Systems”
b. Section 730 “Traffic Signals”
c. Section 731 “Traffic Counting Equipment”
d. Section 750 “Roadway Lighting”
e. Section 756 “Electrical Conduits and Ducts Under Roadways”

Submittals shall be prepared for each specification section separately. Section 756 pay items are to be grouped with the other applicable Section submittals where required. These separate groupings of submittals will allow the appropriate knowledge expert to review items only related to their area of expertise. Submittals not grouped accordingly will be returned without review for corrective action.

The Contractor shall utilize the Design Bureau’s Form D-40 and Traffic Engineering Division’s material submittal procedures; or, via the current ALDOT Material Submittal procedures.

Any certifications or licensures required by the Specifications controlling the work to be done (e.g., Electrical Journeyman Licenses, IMSA Certifications, Fiber Optic Technicians, etc.) shall be submitted as part of the Material Submittal process. No submittals for material will be reviewed or returned to the Contractor for a given project prior to certifications and licensures being submitted for review.

Material and equipment lists shall include the following documents, at a minimum: catalog cutouts, published data sheets, and/or manufacturer drawings. These documents shall demonstrate the proposed item meets the related specification requirements.

The submittal form shall have each item sequentially numbered, a reference to the Specification Section and/or plan sheet, and a description of the material. The description shall include the item’s type, model number, catalog number, and manufacturer. These submittal documents shall be clearly marked and keyed to the sequential item numbers listed on the submittal form.

Submittal forms shall be clearly marked and complete. All components required for a complete system, sub-system and/or pay item shall be listed on Form D-40 as defined in the form’s instruction documents. All individual components of assembled equipment (e.g., cabinets, controller, hubs, etc.) shall be itemized on the submittal form. Partial listings or incomplete shop drawings for any individual pay item, system, or sub-system will not be accepted for consideration and shall be returned for correction without review.

Any changes to the approved material and equipment lists must be requested in writing through proper channels.

Other construction submittals (e.g., as-built drawings, user/operation manuals, maintenance procedures manuals, testing procedures and reports, licenses and certifications, etc.) shall be submitted in accordance with and as specified within their applicable specification section(s).

2. Transmittal of Submittals.

Material submittals shall be transmitted electronically by the Contractor via the Form D-40 Material Submittal Process or via the current ALDOT Design Bureau standard practice. These submittals are to be sent to TrafficDesignSubmittals@dot.state.al.us or to the identified Working Group email address (as defined in the corresponding specification section) for review and approval. Other ALDOT personnel are to be copied with these transmittals as shown on Form D-40 and in accordance with ALDOT’s material submittal procedures.

At a minimum, the Form D-40 (or a transmittal letter if Form D-40 is not required) shall indicate the Contractor’s contact information including a valid email address, the ALDOT project number, county or counties, project description, along with the name and address of the prepare of the submittal documents.

Incomplete transmittals may cause rejection of the entire submittal. Submittals shall be delivered well in advance of the point in time when the work will be performed. Contractor shall submit all items related to each Pay Item unless otherwise requested prior to transmitting said submittal by the Contractor and as approved by the Engineer.

a. E-Mail Submittals.

For each e-mail submittal, the subject line shall include the project number, county or counties, and type of submittal (e.g., Intelligent Transportation Systems, Traffic Signals, Roadway Lighting, etc.) unless otherwise indicated by the applicable Bureau’s Working Group procedures and/or directives. A complete PDF submittal copy shall be transmitted for review.

Unacceptable items on the submittal will be returned for corrective action. Contractor shall transmit material re-submittals in the same manner as previously described but transmittal and submittal form shall be marked as re-submittal. A copy of the approved material and equipment listings will be returned to the Contractor.

b. Physical Submittals:

For each e-mail submittal, the subject line shall include the project number, county or counties, and type of submittal (e.g., Intelligent Transportation Systems, Traffic Signals, Roadway Lighting, etc.) unless otherwise indicated by the applicable.

While e-mail is the preferred submittal method, in the event that email is not an option, the Contractor may transmit submittals for review to the Design Bureau - Traffic Engineering Division (Attn: Traffic Design Engineer). The Contractor shall submit two (2) copies of all applicable materials including the completed Form D-40, cut sheets, and/or other related documentation. Contractor shall provide a cover letter for the submittal package which includes the Project Number, Project Description, County, Material Submittal Number, and the name and contact information of the Contractor and Sub-Contractor (if involved). The hardcopy submittal package shall be addressed to and delivered to the Project Manager. Project Manager is to review submittal for completeness and forward to the Working Group in care of the State Traffic Design Engineer. Upon completion of their review, the Working Group will return the marked-up physical submittal to the Area Construction Engineer with a scanned copy being sent out electronically.

Unacceptable items on the submittal will be returned for corrective action. Contractor shall transmit material re-submittals in the same manner as previously described but transmittal and submittal form shall be marked as re-submittal. A copy of the approved material and equipment listings will be returned to the Contractor.

3. Special Design Calculations.

Submittals of any special design calculations required for Traffic Design pay items shall be prepared as detailed within each Section’s specifications. The Contractor shall have the required design calculations prepared per the applicable specification and submit to the identified Working Group email address (as defined in the corresponding specification section) for review and approval. Other ALDOT personnel are to be copied with these transmittals as directed by the applicable specification section.

Design calculations shall be submitted with any related drawings. The signature, seal, and date of signature shall be placed on all details and design calculations by a Professional Engineer that is licensed in the State of Alabama and not employed by the ALDOT.

At a minimum, the design calculations transmittal letter shall indicate the Contractor’s contact information including a valid email address, the ALDOT project number, county or

counties, project description, along with the name and address of the preparer of the design calculations and related drawings.

Incomplete design calculations and related documentation may cause rejection of the entire submittal. Design calculation submittals shall be delivered well in advance of the point in time when the equipment is required and the related work will be performed.

The Contractor shall be fully responsible for all the costs of unacceptable construction work whether or not design calculations and related working drawings are submitted for the construction procedures and materials that affect the quality of construction.

4. Distribution of Submittals.

The completed material submittals and design calculations will be checked for completeness. The completed submittals will be distributed to ALDOT construction personnel for inspection of the work. If submitted through electronic mail, the Approval for distribution will be given to the Contractor through electronic PDF by the Engineer, indicated by an electronic stamp. If submitted through physical copies, the Approval for distribution will be given to the Contractor through paper copies by the Engineer, indicated by a physical stamp. The distribution of the drawings will not release the Contractor and the Professional Engineer from being solely and fully responsible for the accuracy and adequacy of the drawings. Extra work that may result from errors in the working drawings and design calculations shall be done without additional compensation.

5. Beginning Work for Submittal Items.

Construction shall not be performed on any item of work for which submittals are required until the Engineer receives the approved submittals for inspection of the work. There will be no compensation for work that is performed prior to the point in time that ALDOT personnel have the approved submittals for use in inspecting the construction work.

(e) Compensation for Drawings.

There will be no direct payment for the preparation and submittal of material submittals, Shop Drawings, Working Drawings and design calculations. The cost of the drawings and design calculations shall be included in the contract unit prices for the items of work.

105.03 Conformity with Plans and Specifications.

All work performed and all materials furnished shall be in reasonably close conformity with the lines, grades, cross sections, dimensions and material requirements, including tolerances shown on the plans or indicated in the Specifications.

In the event the Engineer finds the materials furnished, work performed, or the finished product not within reasonably close conformity with the plans and Specifications but that reasonably acceptable work has been produced, he shall then make a determination if the work shall be accepted and remain in place. In this event, the Engineer will document the basis of acceptance by contract modification which will provide for an appropriate adjustment in the contract price for such work or materials as he deems necessary to conform to his determination based on engineering judgement.

Where definite tolerances are specified in the contract, such tolerances shall fix the limits of reasonably close conformity. Where tolerances are not specified in the contract, the Engineer will determine the limits of reasonably close conformity in each individual case and his decision shall be final and conclusive and mutually accepted by all parties.

In the event the Engineer finds the materials furnished, work performed, or the finished product are not within reasonably close conformity with the plans and Specifications, the work shall be removed and replaced or otherwise satisfactorily corrected by and at the expense of the Contractor.

105.04 Coordination of Plans, Specifications, and Special Provisions.

(a) General.

These specifications, the plans, special provisions, and all supplementary documents are essential parts of the contract, and a requirement occurring in one is as binding as though occurring in all. They are intended to be complimentary and to describe and provide for a complete work. In case of discrepancy, calculated dimensions, unless obviously incorrect, shall govern over scaled dimensions, plans shall govern over Standard Specifications, General Application Special Provisions shall govern over Plans and Standard Specifications, and Project Specific Special Provisions shall govern over General Application Special Provisions, Standard Specifications, and Plans.

(b) Errors.

The Contractor shall not take advantage of any apparent error or omission in the plans or specifications. In the event the Contractor discovers such an error or omission, he shall immediately notify the Engineer. The Engineer will then make such corrections and interpretations as may be deemed necessary for fulfilling the intent of the plans and specifications.

105.05 Cooperation with Utilities and Non-Highway Public Facilities.

It will be the State's duty to notify in writing all utility owners or other parties affected, of the date they may begin adjustments of their facilities. The State will endeavor to have all necessary adjustments of public or private utilities, or other appurtenances within or adjacent to construction limits, made as soon as practicable. The owners or operators of private or public utilities shall have access to the work for the installation, adjustment, or repair of main line and service facilities. All frames of openings for valves, manholes, catch basins, or other fixtures encountered in areas to be covered by a pavement, shall be adjusted to the proper elevation before the pavement is placed. The Contractor shall coordinate his activities with those of utility owners while utility adjustments are being made. Copies of utility agreements will be made available for the Contractor's inspection at the Alabama Department of Transportation Area offices. The Contractor shall investigate conditions of existing utilities prior to submitting his bid for the purpose of coordinating the work to the greatest extent possible.

The Contractor's attention is directed to any utilities that may be involved on this project and are designated in the Plan Assembly. In any event, it shall be the Contractor's responsibility to determine the exact location of all existing utilities, whether shown on the Plans or not. The relocation and/or adjustments of said utilities have been authorized and utility facilities have been cleared or adjusted; however, should additional points of conflict occur, they will, of necessity, be performed during the construction operation. Cooperation between the Contractor and the Utility Companies shall be expected in accordance with this Article.

Any existing underground utilities, whether indicated on the plans or not, that have been abandoned by the Utility Companies within the limits of construction that require removing shall be removed by the Contractor. Any material removed in this manner shall become the property of the Contractor. Disposal of said material shall be at his discretion outside of the right-of-way limits. Cost of such work shall be paid for under applicable contract items of work or as Extra Work as outlined in Article 104.03.

105.06 Cooperation by the Contractor.

(a) General.

The Contractor will be supplied with a minimum of two sets of approved plans and contract assemblies (except Standard Specifications) including Special Provisions. The Contractor shall purchase any required Standard Specifications from the Department.

One set of approved plans and one copy of the contract assembly, including the Standard Specifications shall be kept available on the work at all times.

The Contractor shall give the work the constant attention necessary to facilitate the progress thereof, and shall cooperate with the Engineer, his inspectors, and other Contractors in every way possible.

(b) Contractor's Superintendence and Supervision.

The Contractor shall have on the work at all times, as his agent, a competent superintendent capable of reading and speaking English and capable of thoroughly understanding the plans and specifications. The superintendent shall be thoroughly experienced in the type of work being performed and will receive instructions from the Engineer or his authorized representatives. The Superintendent shall have full authority to execute orders or directions of the Engineer without delay and to promptly supply such materials, equipment, tools, labor and incidentals as may be required. Joint venture Contractors shall have one such superintendent for all ventures. Such superintendents shall be furnished irrespective of the amount of work sublet and shall have full authority over all subcontract work.

105.07 Cooperation Between Contractors.

(a) General.

The Department reserves the right at any time to contract for and perform other or additional work on or near the work covered by the contract.

When separate contracts are let within the limits of any one project, each Contractor shall conduct his work so as not to interfere with or hinder the progress or completion of the work being performed

by other Contractors. Contractors working on the same project shall cooperate with each other as directed.

Each contractor involved shall assume all liability, financial or otherwise, in connection with his contract and shall protect and save harmless the Department from any and all damages or claims that may arise because of inconvenience, delays, or loss experienced by him because of the presence and operations of other Contractors working within the limits of the same project.

The Contractor shall arrange his work and shall place and dispose of the materials being used so as not to interfere with the operations of the other Contractors within the limits of the same project. He shall join his work with that of the others in an acceptable manner and shall perform it in proper sequence to that of the others.

The Engineer is empowered to regulate and coordinate the stages or progress of construction, or items of work of the respective Contractors to affect necessary cooperation and satisfactory performance and completion. The Engineer's decision shall be binding in any dispute involving the work arising between Contractors.

(b) Right of Way for Structure Contractor.

Except as provided in Subarticle (a) above, the structure Contractor shall have available for his operations and storage the right of way between abutments and for a distance of up to 150 feet {45 m} (unless otherwise shown on the plans) back of the face of each abutment of each proposed structure along the main road, depending upon site conditions.

In the case of an underpass structure, the structure Contractor will have the use of the right of way for a distance of up to 150 feet {45 m} (unless otherwise shown on the plans) on each side of the centerline of the structure, depending upon site conditions. He shall provide a minimum 12 foot {3.7 m} vertical and 14 foot {4.2 m} horizontal clearance through the falsework of such structure, for movement of construction equipment. He shall keep open and not interfere with roadways or detours for public travel. He shall have right of access to each structure along the roadbed location or other portion of the right of way and shall not be barred from such access by operations of other Contractors. He shall not by his operations bar passage of other Contractors between sections of their work beyond each end of a structure.

105.08 Construction Stakes, Lines, and Grades.

(a) For Projects Containing Item 680-A, Geometric Controls, the Following Shall Apply:

The furnishing of construction stakes, lines, and grades shall be as outlined in Section 680.

(b) For Projects Not Containing Item 680-A, Geometric Controls, the Following Shall Apply:

1. Determination of Lines and Grades.

   The Engineer will set construction stakes for the Contractor establishing all the lines, grades, and measurements necessary for the proper prosecution of the work. The location, alignment. and elevation of all parts of the work will be established by the Engineer, but the Contractor shall assume full responsibility for construction to the alignment, elevations, and dimensions as indicated by the stakes and/or plans. These stakes and marks shall constitute the field control by and in accordance with which the Contractor shall govern and execute the work. For all work, the Engineer will furnish the Contractor all lines, elevations, and bench marks needed to lay out the work correctly. No work shall be done without lines and grades having been given by the Engineer.

   For control of elevations of base and pavement layers, the Contractor will be furnished one set of control elevation stakes. These stakes will be set on grade at intervals of not more than 50 feet {20 meters} along and near each side of each roadbed, and at other points as needed for accurate grade control. It shall be the Contractor's responsibility to obtain from this one set of control stakes the proper elevations for each layer of subbase, base, and pavement.

2. Contractor's Responsibility for Stakes.

   The Contractor shall be responsible for the preservation of all stakes and marks. If in the opinion of the Engineer, any of the construction survey stakes or marks have been carelessly destroyed or disturbed by the Contractor, the cost to the State of replacing them will be charged against him and will be deducted from the payment for the work.

3. Furnishing Stakes, Templates, etc.

   The Contractor shall furnish free of charge, all stakes, templates, and other materials necessary for marking and maintaining points and lines given, and shall furnish the Engineer such

incidental labor as he may require in establishing points and lines necessary to the prosecution of the work to satisfactory completion.

105.09 Inspectors, Assistants, and Representatives.

(a) General.

The Engineer may appoint such inspectors, assistants, or representatives as he deems necessary, and they shall be granted full access to the work and to the mills and factories in which material is being prepared for use under the contract. In County Aid work, the Engineer may appoint the County Engineer as his representative on the work.

(b) Duties of the Inspector.

Inspectors will be authorized to inspect all work done and materials furnished. Such inspection may extend to all or any part of the work and to the preparation, fabrication or manufacture of the materials to be used. The inspector will not be authorized to alter or waive the provisions of the contract. The inspector will not be authorized to issue instructions contrary to the plans and specifications, or to act as foreman for the Contractor; however, he shall have the authority to reject work or materials until any questions at issue can be referred to and decided by the Engineer.

105.10 Inspection of Work.

(a) Access to the Work for Inspection by the Engineer.

All materials and each part or detail of the work shall be subject to inspection by the Engineer. The Engineer shall be allowed access to all parts of the work and shall be furnished with such information and assistance by the Contractor as is required to make a complete and detailed inspection.

If the Engineer requests it, the Contractor, at any time before acceptance of work, shall remove or uncover such portions of the finished work as may be directed. After examination, the Contractor shall restore said portions of the work to the standard required by the specifications. Should the work thus exposed or examined prove acceptable, the uncovering, or removing, and replacing of the covering or making good of the parts removed will be paid for as extra work; but should the work so exposed or examined prove unacceptable, the uncovering, or removing, and the replacing of the covering or making good the parts removed, will be at the Contractor's expense.

When any unit of government, political subdivision, utility company, or railroad corporation is to pay a portion of the cost of the work covered by this contract, its respective representatives shall have the right to inspect the work. Such inspection shall in no sense make any unit of government, political subdivision, utility company, or railroad corporation a party to this contract, and shall in no way interfere with the rights of all parties.

(b) Failure of the Engineer to Discover and Reject Defective Materials and Work.

The Contractor shall bear the costs of replacing defective materials and work including the occurrence of the Engineer failing to promptly discover and reject defective materials and work.

105.11 Removal of Unacceptable and Unauthorized Work.

All work which does not conform to the requirements of the contract will be considered as unacceptable work.

Unacceptable work, whether the result of poor workmanship, use of defective materials, damage through carelessness or due to any other cause, shall be removed immediately and replaced in an acceptable manner.

Work done contrary to the instructions of the Engineer, work done beyond the lines shown on the plans, work performed without sublet approval by the Engineer if the work is performed by forces other than the Contractor's forces, or any extra work done without authority will be considered as unauthorized. If the quality of the unauthorized work is acceptable to the Engineer, the work may be left in place without payment. If the quality of the unauthorized work is unacceptable, the work shall be removed and replaced.

Upon failure on the part of the Contractor to comply forthwith with any order of the Engineer made under the provisions of this Article, the Engineer will have authority to cause unacceptable work to be remedied or removed and replaced and unauthorized work to be removed and to deduct the costs from any monies due or to become due the Contractor. Continued failure on the part of the Contractor to comply shall be considered sufficient cause for the Director to declare the contract in default and to proceed to have the work completed in accordance with Article 108.12.

105.12 Oversize/Overweight Vehicle Permit and Load Restrictions.

(a) Oversize/Overweight Vehicle Permit.

An Oversize/Overweight Vehicle Permit may be required for moving oversized and overweight loads. The ALDOT Vehicle Enforcement Office should be contacted for information on obtaining the permit and any special requirements (such as police escorts) for moving these loads. An annual permit for moving specific equipment on a construction project is available for purchase from the ALDOT Vehicle Enforcement Office.

(b) Load Restrictions.

The Contractor shall comply with all legal load restrictions in the hauling of materials on public roads beyond the limits of the project. In the hauling of materials on city streets or county roads, it shall be the responsibility of the Contractor to regulate his loads so that damage does not occur, regardless of the legal or posted load limit. Maintenance of public roads shall be as outlined in Article 104.07. A special permit will not relieve the Contractor of liability for damage which may result from the moving of material or equipment.

Within the project limits, loads shall be so regulated that damage will not occur to base or pavement layers and structures, but in no case shall loads exceed the legal load limit unless permitted in writing by the Engineer under special conditions. No loads will be permitted on base, pavement or structures before the expiration of any required curing period. The Contractor shall be responsible for all damage by his hauling and other construction equipment within the project limits.

Gross weight {mass} tickets for loads delivered to the project will be verified by the Engineer that all loads incorporated in the project are within the legal load limit. Required information for verification will be secured at the time of delivery; however, verification of weights {masses} may be made at any time during the project.

On loads of materials not accompanied by a gross weight {mass} ticket, the Contractor shall furnish, upon request of the Engineer, the tare weight {mass} of any truck delivering such materials to the project. These truck tare weights {masses}, along with appropriate volumes and conversion factors, will be used by the Engineer in determining approximate quantities of materials which may be hauled to the project and remain within the legal load limit. If the Engineer feels that the legal load limit is being exceeded, he may order the Contractor to verify the weight {mass} of designated loads at an approved truck scale.

Payment will be made only for that portion of a load up to and including the legal load limit. No payment will be made for any portion of a load exceeding the legal load limit.

105.13 Maintenance of the Work.

(a) General.

The Contractor shall maintain the work during construction until the entire project is completed and accepted. This maintenance shall constitute continuous and effective work prosecuted day by day, with adequate equipment and forces to the end that the roadway or structures are kept in satisfactory condition at all times.

In the case of a contract for the placing of a course upon a course or subgrade previously constructed, the Contractor shall maintain the previous course or subgrade during all construction operations.

The Contractor's attention is directed to Article 104.07 for maintenance of roads and detours, and compensation thereof.

(b) Compensation.

All cost of maintenance work during construction and before the project is accepted shall be included in the unit prices bid on the various pay items and the Contractor will not be paid an additional amount for such work.

105.14 Failure to Maintain Work.

If the Contractor, at any time, fails to comply with the provisions of Article 105.13, the Engineer will immediately notify the Contractor of such non-compliance. If the Contractor fails to remedy unsatisfactory maintenance within 24 hours after receipt of such notice, the Engineer may immediately proceed to maintain the project, and the entire cost of this maintenance will be deducted from monies due or to become due the Contractor on his contract.

105.15 Acceptance.

(a) Construction Acceptance Inspection.

Once all pay items have been completed, the Engineer will notify the Contractor in writing of the presumptive completion of the project. The Contractor may request a project status review in writing to determine presumptive completion at any time before receiving notice from the Engineer. Upon issuance of such notice, the Area Operations Engineer and all pertinent personnel (such as Area construction, project, county transportation, and maintenance personnel, FHWA, county, municipal or other owner representatives as applicable) will inspect all the work in the contract. One (1) written punch list will be provided to the Contractor within 21 calendar days of written notice of presumptive completion which will detail the work to be done or the specific defects to be remedied to place the work in condition for acceptance for maintenance purposes. The Contractor will have a maximum of 28 calendar days to correct and complete the items listed unless an alternate schedule for work is provided and approved by the Engineer. Time charges will resume if the work is not completed in the 28 calendar days or within the approved schedule. Any deficiencies arising after punch list issuance shall be remedied and routine maintenance shall be performed in accordance with Articles 105.13 and 107.17 until Acceptance for Maintenance at no additional cost to the Department. Any additional items not identified on the punch list may be considered extra work.

(b) Partial Acceptance for Maintenance.

When requested by the Contractor in writing, the Engineer may consider accepting a portion of the contract for maintenance prior to all items of work being completed. This will apply to specific items or operations of being restricted by seasonal limitations or check periods in accordance with 108.07c or 108.09 or work as directed by the Engineer. All other contract items of work shall be satisfactorily complete.

The Engineer will notify the contractor that they will assume maintenance of specific items or operations of work and will also indicate which items are not accepted. The partial acceptance letter to the contractor should also detail the disposition of time charges for the remaining work.

Additional costs for completing the remaining items of work as a consequence of a partial acceptance such as traffic control and remobilization shall be borne by the Contractor. Partial acceptance shall in no way void or alter any terms of the contract.

Once the remaining items of work have been satisfactorily completed, the Engineer will accept the portion of work and assume maintenance of the project henceforth.

(c) Final Acceptance.

1. General.

   Upon due notice from the Contractor of presumptive completion of the remaining items of work in Subarticles (a) and (b) above, the Engineer will make an inspection. If all construction provided for and contemplated by the contract is satisfactorily completed, that inspection shall constitute the final inspection.

2. Vegetation Bonds.

   When directed by the Engineer, the Contractor shall provide a vegetation bond covering sustained growth of established or planted vegetation. The bond shall be of sufficient value to cover all costs associated with the replanting or reestablishment of the vegetation should it become necessary. The dollar amount of the bond shall be the costs for the labor, materials and equipment required for traffic control, temporary erosion and sediment control, and permanent vegetation establishment. The period of time covered by the bond will not be required to be greater than 12 months unless shown otherwise on the plans. Vegetation bonds should not be used as a substitute for established vegetation of a permanent species.

3. Acceptance for Maintenance.

   Upon satisfactory completion of the work as noted in Item 105.15(c)1 above, the Area Operations Engineer will notify the Construction Engineer that the Contractor has completed all work required by the contract. After the Construction Engineer has concurred with the Area Operations Engineer's recommendation, the Construction Engineer will advise the Contractor in writing that the work has been accepted and the Department will assume the maintenance thereof subject to the "record check" of materials and workmanship.

4. NPDES Termination

   Within 10 days of Acceptance for Maintenance, the Engineer will request NPDES Permit Termination as outlined in Subarticle 107.21(e). The Contractor shall be responsible for

stormwater runoff control on the project until the storm water permit is terminated or 30 calendar days after the Engineer's request for termination has been processed, whichever is less. The Contractor is also responsible for correcting problems associated with onsite erosion and offsite sedimentation deposition during this time.

5. Contractor's Advertisement of Completion.
   The Contractor, immediately after receiving Notice of Acceptance for Maintenance, shall give notice of said completion by publishing the notice for a minimum of three successive weeks using one or more of the following methods:
   a. In a newspaper of general circulation in the county or counties in which the work, or some portion thereof, has been done.
   b. On a website that is maintained by a newspaper of general circulation in the county of counties in which the work, or some portion thereof, has been done.
   c. On a website utilized by the awarding authority for publishing notices.
   d. If a newspaper is not published in a county where work is done, the notice may be given by posting at the Court House for 30 days and proof of the posting of the notice shall be given by the Contractor.

   Proof of publication of said notice shall be made by the Contractor to the Director, by affidavit of the publisher or website owner.
6. Written Notice of Final Acceptance.
   After completion of all requirements noted in this Article and Article 109.12, the Engineer will process the Final Estimate for payment. At this time, the State Construction Engineer will give the Contractor written notice that the project is completed and will specify that date as Final Acceptance.

105.16 Claims for Adjustments and Disputes.

Claims shall be handled as provided in Section 110, Claims.

SECTION 106
CONTROL OF MATERIALS

106.01 Source of Supply and Quality Requirements.

(a) General.

Attention is directed to Section 800, Materials, which includes additional Specifications for materials.

The materials furnished for use in the work shall be new unused materials, unless otherwise specified, meeting all quality requirements of the contract. In order to expedite the inspection and testing of materials, the Contractor shall notify the Engineer of his proposed sources of materials prior to delivery. At the option of the Engineer, materials may be approved at the source of supply before delivery is started. If it is found after trial that sources of supply for previously approved materials do not produce uniform and satisfactory products, or, if the product from any source proves unacceptable at any time, the Contractor shall furnish acceptable materials from other approved sources. The Engineer shall have the right to reject the entire output of any source from which he finds it is impracticable to secure a continuous flow of uniformly satisfactory materials.

1. Federal Participating Projects.
   a. Steel and Iron Products (Buy America).
      Steel/iron materials from the initial melting and mixing of these materials and all manufacturing processes including the stage of applying a coating to these materials (epoxy coating, galvanizing, painting, or any other coating that protects or enhances the value of the coated material) that are permanently incorporated into the completed project shall be produced domestically (in the United States, its territories, or possessions). If any part of the project (defined by and including the NEPA document) is funded by Federal-aid, then the entire project must meet the Buy America provisions, including utility relocation reimbursements for Federal-aid funds authorized after October 1, 2012.
      If the dollar amount of the foreign source steel/iron is less than $2,500 or 0.1% of the contract amount, whichever is greater, the foreign source steel/iron can be used in the project.

      The Contractor shall provide certification that the steel/iron is domestically produced.
   b. Build America, Buy America Act.
      The Build America, Buy America Act (BABA) of the Infrastructure Investment and Job Act (IIJA) (Pub. L. No. 117-58 §§ 70901-52) expands the requirements of the Buy America Act to include permanently incorporated construction materials on Federal-aid projects.
      A "construction material" as defined under BABA shall include any article, material, or supply - other than an item of primarily iron or steel; a manufactured product; cement and cementitious materials; aggregates such as sand, stone, or gravel; or aggregate binding agents or additives - that is or consists primarily of the following:
      - Non-ferrous metals;
      - Plastic and polymer-based products, including but not limited to polyvinylchloride, composite building materials, and polymers used in fiber optic cables;
      - Glass (including optic glass);
      - Lumber; or
      - Drywall

      Items that consist of two or more of the listed materials that have been combined together through a manufacturing process, and items that include at least one of the listed materials combined with a material that is not listed through a manufacturing process, should be considered as manufactured products rather than construction materials.
      On projects let after October 1, 2025, the final assembly of the manufactured products incorporated into the project must occur in the United States. On projects let after October 1, 2026, in addition to the final assembly in the United Stated requirement, the American-made components of the manufactured products must exceed 55% of the total cost of the product.
      All construction materials must be manufactured in the United States. To be considered produced in the United States, at least the final manufacturing process and the immediately preceding manufacturing process must occur in the United States.
      The Contractor assumes the risk of including any foreign materials that are not exempt, including iron or steel, in the Contractor's bid.
      The Contractor has the obligation to remove and replace non-BABA complaint material unless a waiver is granted for the use. No claims for contract adjustment (additional time, money, or both) will be made because of the non-BABA complaint material.
      The Contractor shall provide certification that the construction materials defined under BABA are domestically produced. After work is completed on the project, the Contractor must submit a certification to the Engineer with the following information:
      "I hereby certify that all construction materials and manufactured products furnished to the Alabama Department of Transportation for the construction of the above referenced project that are required to be compliant with the Build America Buy America Act have been produced in the United States of America as defined by §70912 "Definitions" of the Infrastructure and Investment Jobs Act (IIJA) (Public Law 117-58 - Nov. 15, 2021). I further certify that all supporting documentation is on file and will be maintained for a period of three (3) years after project completion."
      The Contractor may maintain this documentation electronically or in paper format. The Department or FHWA may request to review the Contractor's supporting documentation to verify compliance with the Buy America provisions at any time. The Contractor shall provide the supporting documentation within five (5) business days of the request. The burden of proof to meet the Buy America provisions rests on the Contractor. If the supporting documentation does not undeniably demonstrate to the Department or FHWA that the iron or steel, manufactured products, or construction materials identified in the Certificates of Compliance were produced in the United States of America, then such iron, steel, manufactured products or construction materials will be considered unacceptable and must be replaced at no cost to the Department.
      The Contractor shall not anticipate that any BABA preference provisions will be waived.
   c. Convict Produced Materials.
      Materials produced after July 1, 1991, by convict labor are prohibited from being incorporated in the work unless such materials have been:

      - Produced by convicts who are on parole, supervised release, or probation from a prison or
      - Produced in a qualified prison facility and the cumulative annual production amount of such materials for use in Federal-aid highway construction does not exceed the amount of such materials produced in such facility for use in Federal-aid highway construction during the 12-month period ending July 1, 1987. "Qualified prison facility" means any prison facility in which convicts, during the 12-month period ending July 1, 1987, produced materials for use in Federal-aid highway construction projects.
   d. Cargo Preference Act.
      Materials or equipment that are acquired solely for a Federal-aid project must comply with the requirements of 46 CFR 381. Clauses 46 CFR 381.7(a)-(b) are hereby incorporated into these Specifications by reference.
2. Non-Federal Participating Projects.
   On projects financed entirely by the State of Alabama or any political subdivision thereof, the Alabama Legislature has passed Acts that require the exclusive use of American materials, products, and supplies as follows:
   a. Iron or Steel Products.
      The content of Alabama Code Section 39-3-4 is as follows: "(a) Any contractor for a public works project, financed entirely by the State of Alabama or any political subdivision thereof, within this state shall use iron or steel produced within the United States when specifications in the construction contract require the use of iron or steel and do not limit its supply to a sole source under subsection (f) of Section 39-2-2. If the awarding authority decides that the procurement of domestic iron or steel products becomes impractical as a result of a national emergency, national strike, or other cause, the awarding authority shall waive the above restriction. (b) In the event the contractor violates the domestic iron or steel requirements of subsection (a), and domestic iron or steel is not used, there shall be a downward adjustment in the contract price equal to any realized savings or benefits to the contractor."
   b. Non-Steel Materials, Supplies and Products.
      The content of Alabama Code Section 39-3-1 is as follows: "(a) The awarding authority contracting for a public works project to be financed entirely by the State of Alabama or any political subdivision of the state, shall stipulate or cause to be stipulated in the contract a provision whereby the person, firm, or corporation undertaking the project agrees to use in the execution of the contract materials, supplies, and products manufactured, mined, processed, or otherwise produced in the United States or its territories, if the same are available at reasonable and competitive prices and are not contrary to any sole source specification implemented under subsection (f) of Section 39-2-2. (b) In the event the contractor breaches the agreement to use domestic products, and domestic products are not used, there shall be a downward adjustment in the contract price equal to any realized savings or benefits to the contractor."
   c. Sole Source Reference [Alabama Code Subsection 39-2-2(f)].
      In the rare case that a sole source material is required from a non-domestic source, the Department will make the determination of what the Contractor will be required to furnish.

(b) Clearances and Acknowledgments for the Use of Offsite Areas.

1. Types of Regulatory Clearances and Acknowledgments.
   The regulatory clearances and acknowledgments shown in the following table are required for material pits, waste areas, haul roads, material stockpiles, long term equipment parking areas and other offsite areas selected by the Contractor to utilize in the construction of the project.

REGULATORY CLEARANCES AND ACKNOWLEDGMENTS FOR THE LONG-TERM USE OF OFFSITE AREAS	
1.	Applicable Construction Stormwater Discharge Permitting from the Alabama Department of Environmental Management.
2.	Historical and Archeological clearance from the Alabama Historical Commission.
3.	Written acknowledgement from the U.S. Fish and Wildlife Service that there will be no adverse effect on endangered and threatened species protected under the Endangered Species Act.
4.	Written acknowledgement from a Professional Biologist that wetlands will not be adversely affected.

2. Submittal of Copies of Regulatory Clearances and Acknowledgments.
   The Contractor shall submit copies of clearances and acknowledgments as verification that regulatory authorities are aware of the offsite activity and that the activity will not adversely impact natural resources.
   Clearances and acknowledgements will not be required for offsite areas used for short-term parking, staging or material stockpiling where the activity does not require clearing or grading. Only a copy of applicable ADEM permitting will be required for offsite areas commercially owned and operated by a third party that is not an ALDOT contractor or subcontractor.

(c) Operation of Offsite Pits and Waste Areas.

The operations of any material pit or waste area shall be so conducted that it will blend into the surrounding landscape. Pit sites and waste areas shall be dressed to obliterate any unsightly appearance and treated in such a manner that erosion will not occur and result in the pollution of the watershed area. In general, sources will not be permitted at locations where resulting scars are visible from any highway. However, when approved, adequate space for conservation of existing natural screenings or to permit the installation of screen planting between the road surface and the disturbed area shall be provided.

The Contractor shall accept full responsibility for the quality of the materials used. The Contractor shall make all necessary arrangements with the owners of the materials; pay the purchase price or royalty directly to the owners and bear all the expense of procuring and delivering the materials complete in place, including cost of ingress and egress, and including the cost of opening, developing, and operating such sources.

If the Contractor submits a written request to the Department asking that the Department run samples or analyses on the materials, the Department may, at its option, run such samples or analyses, but a charge will be made for the tests and the cost deducted from the next monthly estimate due the Contractor.

Where access to a material source or waste area requires removal of fencing, the removal and replacement of fence, together with the protection of any livestock affected, shall be the responsibility of the Contractor without direct compensation.

Use of existing public roads for hauling materials to be used in the work shall be governed by Article 104.07.

(d) Blank.

(e) Blank.

(f) Use of Materials with Special Acceptance Requirements.

The Alabama Department of Transportation maintains several lists of materials, sources, and devices, which have undergone some form of preliminary evaluation. These lists are established both as reference for Contractors and as methods to eliminate some of the lengthy time delays required in evaluating certain products. Each list is unique in requirements and job control acceptance. Users of these lists should read all requirements carefully before using products on them. When materials or products shown on these lists are used, they shall be selected from the most current applicable list at the time of installation, regardless of the materials and products that may have been shown on the lists prior to the date of installation. These lists are published in the Department's manual "MATERIAL, SOURCES, AND DEVICES WITH SPECIAL ACCEPTANCE REQUIREMENTS" (MSDSAR), which is available on the Department's website.

The lists are not a blanket approval and do not relieve the Contractor of the responsibility of furnishing quality materials. The Project Manager will inspect the material, and if doubt exists, job control samples will be taken. If these job control samples indicate failing test results, one of the following actions will be taken depending on the detrimental effects to the project:

1. Previously installed materials may be ordered replaced with passing materials at no cost to the Department.
2. Previously installed materials, which are of a temporary nature, may be left in place with the Contractor maintaining the failing materials for the duration of their use at his expense.
3. Previously installed materials may remain in place with an agreed price reduction.

After failing job control results are received, no further installation of the failing material will be allowed and a determination will be made by the Department as to the removal of the product from the list.

The lists are established and maintained by the individual sections within the Department of Transportation who are primarily concerned with the products. Lists are divided into five general categories of similar requirements. They are:

1. Qualified Sources of Materials
2. Approved Materials
3. Qualified Materials
4. Approved Traffic Control Devices and Materials
5. Qualified Traffic Control Devices and Materials
6. Approved Intelligent Transportation System Devices and Materials

The Alabama Department of Transportation Product Evaluation Board has final authority for addition or removal of products from these lists. The Bureau of Materials and Tests duplicates and disseminates these lists.

General information concerning materials, sources, and devices with special acceptance requirements is contained in ALDOT-355. Information concerning items on these lists or how to get an item onto one of these lists may be obtained by contacting:

Alabama Department of Transportation
Bureau of Research and Development
1409 Coliseum Boulevard
Montgomery, AL 36110
(334) 206-2240

106.02 Samples, Tests, Cited Specifications.

(a) General.

All material used in the work shall be inspected, tested and approved by the Engineer, Inspection and testing shall be in accordance with the current Departmental Testing Manual. Any work in which untested materials are used without approval or written permission of the Engineer shall be performed at the Contractor's risk. Materials found to be unacceptable and unauthorized will not be paid for and, if directed by the Engineer, shall be removed at the Contractor's expense. The Engineer may permit use prior to sampling and testing of certain materials accompanied by a signed materials guaranty on the form furnished by the Department guaranteeing the material conforms to Departmental Specifications. Such material may be tested at any time and, if found unsatisfactory, shall be removed and replaced with satisfactory material at no additional cost to the Department. The Engineer reserves the right to refuse permission for use of materials on the guaranty basis at any time.

The Contractor shall furnish the Department, free of charge, ample quantities of such samples as are necessary or required by the Engineer to test adequately any and all materials. Any damage caused by in-place testing when such is specified shall be repaired by the Contractor without additional compensation. Samples will be taken by or under the supervision of a representative of the Engineer. Required or designated tests will be made by and at the expense of the State unless otherwise noted on the plans or in the specifications, in accordance with the most recent standard, interim, or tentative standard methods of ALDOT, AASHTO, ASTM or F.S.S. in force and on file with the Department at the date of advertisement for bids, indicated date of adoption notwithstanding, except where standard or special drawings are included in the plans. Then the AASHTO, ASTM, or F.S.S. in effect on the date of the latest revision to the drawing shall govern.

(b) Plant Inspection.

The Engineer may undertake the inspection of materials at the source. Manufacturing plants may be inspected periodically for compliance with specified manufacturing methods and material samples will be obtained for laboratory testing for compliance with materials quality requirements. This may be the basis for acceptance of manufactured lots as to quality.

In the event plant inspection is undertaken, the following conditions shall be met:

1. The Engineer shall have the cooperation and assistance of the Contractor and the producer with whom he has contracted for materials.
2. The Engineer shall have full entry at all times to such parts of the plant as may concern the manufacture or production of materials being furnished.
3. If required by the Engineer, the Contractor shall arrange for an approved building for the use of the Inspector; such building to be located conveniently near the plant, independent of any building used by the material producer, and conforming to requirements of Article 106.03.
4. Adequate safety measures are to be provided and maintained. It is understood that the Department reserves the right to retest all materials prior to incorporation into the work which have been tested and accepted at the source of supply, after the same have been delivered, and to reject all materials which, when retested, do not meet the requirements of these specifications or those established for the specific project.

(c) Supply of Tested Materials.

The Contractor shall regulate his supply so that at all times there will be a sufficient quantity of tested and accepted materials on hand to prevent any delay to the work.

106.03 Field Laboratories.

(a) General.

The laboratories furnished for use shall be roofed, insulated and weather tight with suitable operational air-conditioning and heating facilities for year-round use. Each unit shall be wired for electrical service and in addition the following minimum requirements are applicable to the particular type of laboratory required.

Compensation for the field laboratories shall be in accordance with Section 601.

(b) Base, Soil and Structure Laboratories.

This type laboratory shall contain not less than 200 square feet {18.5 square meters} of floor space (minimum width 8 feet {2.4 m}) with a 7 foot {2.1 m} (minimum) ceiling height and shall contain suitable work benches and drawers. The laboratory shall be portable and shall be independent of other buildings or office space used by the Contractor. It shall have not less than two windows and one outside door, both of which shall be screened and of adequate size to facilitate ventilation of the unit. Location of the laboratory shall be as directed by the Engineer. In addition each unit shall be provided with the following equipment:

1. Double sink with running water (minimum 100 gallon {375 liter} supply)
2. Lights, when requested by the Engineer
3. Three laboratory burners (one combined unit or separate) (gas type shall have minimum capacity to supply the burners five working days)
4. Laboratories for use at rock crushing operations shall also include an approved mechanical shaking machine for screening samples and shall have power for operating the machine
5. Cabinets and shelving shall be provided as appropriate.

(c) Concrete Plant Laboratories.

Concrete plant laboratories shall contain not less than 200 square feet {18.5 square meters} of floor space. These laboratories shall have a minimum width of not less than 10 feet {3 m} with a 7 foot {2.1 m} (minimum) ceiling height and shall contain suitable work benches and drawers. A waiver of the 10 foot {3 m} width requirement may be granted for mobile, trailer type laboratories after an inspection of the lab's suitability has been made and approved. The laboratory may be a portable, a permanent, or a partitioned portion of a permanent structure provided it meets the requirements of these specifications. The unit shall be independent of plant storage, office space, etc., and shall have one private entrance door that can be secured. The laboratory shall be located as directed by the Engineer with window space suitable to the Engineer for periodic observation of plant operations. All outside windows and doors shall be screened. In addition, each shall be provided with the following equipment:

1. Single sink with running water (minimum 100 gallon {375 liter} supply)
2. One laboratory burner or oven
3. Lights
4. Shelves and cabinets shall be provided as appropriate

(d) Asphalt Plant Laboratories.

Asphalt plant laboratories shall contain not less than 450 square feet {41.8 square meters} of floor space and shall be of sufficient size to allow the required independent laboratory equipment to be used simultaneously by the contractor and the state. These laboratories shall have a minimum width of not less than 10 feet {3 m} with a 7 foot {2.1 m} (minimum) ceiling height and shall contain suitable work benches and drawers. A waiver of the 10 foot {3 m} width requirement may be granted for mobile, trailer type laboratories after an inspection of the lab's suitability has been made and approved. The laboratory may be a portable, a permanent, or a partitioned portion of a permanent structure provided it meets the requirements of these specifications. The unit shall be independent of plant storage, office space, etc., and shall have at least one private entrance door that can be secured. The laboratory shall be located as directed by the Engineer with window space suitable to the Engineer for periodic observation of plant operations. In addition, each shall be provided with the following equipment:

1. Single sink with running water (minimum 100 gallon {375 liter} supply)
2. One laboratory burner or oven
3. Lights
4. Shelves and cabinets shall be provided as appropriate
5. All asphalt plant laboratories shall be equipped with an exhaust fan, sufficiently sized and located to effectively clear the laboratory of smoke and fumes in a reasonable, in the judgment of the Engineer, amount of time. All asphalt laboratories shall also be equipped with all applicable equipment listed in ALDOT-349.

106.04 Contractor's Statement of Material Sources.

Before work on any contract is started, the Contractor may be required to furnish a complete statement of the origin, composition and manufacture of any or all materials proposed to be used in the construction of the work, together with samples which may be subjected to the tests provided in the contract to determine their quality and fitness for the work.

106.05 Handling and Storage of Materials.

(a) Handling Materials.

All materials shall be handled in such a manner as to preserve their quality and fitness for the work. Aggregates shall be transported from the storage site to the work in tight vehicles so constructed as to prevent loss or segregation of materials after loading and measuring in order that there may be no inconsistencies in the quantities of materials, intended for incorporation in the work, as loaded and the quantities as actually received at the place of operations.

(b) Storage of Materials.

Materials shall be so stored as to assure the preservation of their quality and fitness for the work. Stored materials, even though approved before storage, may again be inspected prior to their use in the work. Stored materials shall be located so as to facilitate their prompt inspection. Approved portions of the right of way may be used for storage purposes and for the placing of the Contractor's plant and equipment, but any additional space required therefor must be provided by the Contractor at his expense. Private property shall not be used for storage purposes without written permission of the owner or lessee, and if requested by the Engineer copies of such written permission shall be furnished him. All storage sites shall be restored to their original condition by the Contractor at his expense. This shall not apply to the stripping and storing of topsoil, or to other materials salvaged from the work.

106.06 Unacceptable Materials.

All materials not conforming to the requirements of the Specifications shall be considered as unacceptable and all such materials will be rejected and shall be removed immediately from the site of the work unless otherwise instructed by the Engineer. No rejected material, the defects of which have been corrected, shall be used until approval has been given.

In case of failure by the Contractor to comply promptly with any order by the Engineer to remove rejected materials, the Engineer shall have authority to have such rejected materials removed by other means and to deduct the expense of such removal from any monies due or to become due the Contractor.

106.07 Department Furnished Material..

The Contractor shall furnish all materials required to complete the work, except those specified to be furnished by the Department. Department furnished materials will be delivered to or made available to the Contractor at locations specified in the contract.

The cost of handling and placing all materials after they are delivered to the Contractor shall be considered as included in the contract price for the item in connection with which they are used.

The Contractor will be held responsible for all material delivered to him, and deductions will be made from any monies due him to make good any shortages and deficiencies, from any cause whatsoever, and for any damage which may occur after such delivery, and for any demurrage charges.

106.08 Rights In and Use of Materials Found on the Right of Way.

The Contractor, upon his written request and written approval of the Engineer, may use on the project, sand, gravel, rock, or other materials determined suitable by the Engineer as may be found in the limits of the regular excavation. The Engineer will make a study of the Contractor's request and shall submit to the Contractor a written statement of the guidelines under which the request is approved. This statement shall include a detailed analysis of the pay item, or items, under which the Contractor will receive payment for the work performed. The intent is not to preclude payment for both the item of removal and the item under which the materials are used, if, in the opinion of the Engineer payment under both items are justified, but to allow the Department to share in any savings realized by the Contractor in the use of such materials.

The Contractor shall not excavate or remove any material from within the highway location that is not within the grading limits, as indicated by the slope and grade lines, without written authorization from the Engineer.

Any coal or other valuable mineral found within the construction limits as defined by the slope and grade lines considered to be unsuitable for reuse on the project shall be removed by the Contractor. In no case shall any coal or other mineral be removed from outside the slope lines or below subgrade except that removed as unsuitable material as directed by the Engineer (not to exceed 30 inches {750 mm} below subgrade), unless otherwise shown by plan details or with written authorization of the Transportation Director. The Contractor shall assume full responsibility and liability for insuring that any legal rights due the holder of the mineral rights are satisfied prior to the disposition of any mineral. By agreement with the owner of the mineral rights, the Contractor may dispose of this material by direct sale and payment of royalty to the owner or by stockpiling for immediate removal by the owner. The Contractor shall hold the State harmless in all matters pertaining to the disposition of any mineral.

106.09 Quality Control and Quality Assurance (QC/QA) Requirements for Hot Mix Asphalt (HMA) Pavement.

(a) General.

The following modifications apply only to the materials and work performed under Sections 327, 410, 420, 423 and 424.

In all cases, the Department's testing will be separate from the Contractor's testing and both shall be conducted by certified technicians.

All Quality Control aspects of this provision shall be the responsibility of the Contractor. Quality Control is defined as the activities that are related to the production of Hot Mix Asphalt Pavement which meet all the requirements of the Specifications, including mix design, process control testing, sampling and acceptance testing (when so designated by the Department) for determination of Pay Factors, and necessary adjustments to the production process.

All Quality Assurance aspects of this provision shall be the responsibility of the Department and will be accomplished in the following ways:

1. By conducting assurance/verification testing, on a random basis, of independent samples obtained by the Department, at a frequency of one or more per day;
2. By periodically observing tests performed by the Contractor;
3. By monitoring required Contractor control charts exhibiting test results of control parameters.

All Superpave Gyratory Compactors shall have their angle of gyration verified by the Engineer following the procedure in AASHTO T 344, "Standard Method of Test for Evaluation of Superpave Gyratory Compactor (SGC) Internal Angle of Gyration Using Simulated Loading". This includes all design, quality control, and quality assurance SGCs. The compactors shall tilt the specimen molds at an average internal angle of 20.2 ± 0.35 mrad (1.16± 0.02 degrees).

(b) Quality Control.

The Contractor shall provide and maintain a quality control system that will provide reasonable assurance that all materials, products, and completed construction submitted for acceptance conform to contract requirements whether manufactured or processed by the Contractor or procured from subcontractors or vendors. Quality control managers, laboratory technicians and roadway technicians will be certified by the Department as outlined in ALDOT-374, "Certification Requirements for Hot Mix Asphalt Technicians". This quality control system shall conform to ALDOT-370, *Quality Control and Quality Assurance Procedures and Responsibilities for Asphalt Plant Mix Production*.

The sampling and testing frequencies shall conform to the requirements given in Table 1 for a pay item when the accumulated amount of asphalt mix placed for that pay item exceeds 250 tons {250 metric tons}. The accumulated amount of asphalt mix shall be the current total amount of asphalt mix that has been placed beginning from the start of construction. The sampling and testing frequencies given in Table 1 may be waived by the Area Materials Engineer and the asphalt mix may be accepted by visual observation for a maximum accumulated asphalt mix placement quantity of 250 tons {250 metric tons} or less for any individual pay item. The Engineer will record the results of the acceptance of the asphalt mix on form BMT-16 if sampling and testing is not required.

For asphalt paving sections that are 1000 feet or less in length, such as those at bridge or culvert replacements, the Contractor, as part of his QC plan, shall establish a rolling pattern using the nondestructive testing devices approved in Section 306 of the specifications. The device shall either be calibrated to roadway cores or gauge counts and shall be used to determine the rolling pattern producing maximum density. Contractor QC personnel shall be on site throughout each day to perform periodic checks and verify that the rolling pattern continually produces the maximum density that is achievable.

TABLE I — **SECTION 327 E and 420 MIXES**
SAMPLING AND TESTING REQUIREMENTS FOR QC/QA PROJECTS

Control Parameter	Sample Size	Sampling Methods	Sampling Location	Testing Methods	ALDOT Testing Frequency	Contractor Testing Frequency
1. Asphalt Content *	ALDOT Sample = 55 lb {25 kg} Split into 2 equal samples	AASHTO R 97 & ALDOT-210	+Loaded Truck	ALDOT-354 or AASHTO T 308 +++	1 per day per LOT	++ 1 per 700 tons
2. Mixture Gradation	Cont ractor Sample = 55 lb {25 kg} Split into 2 equal samples	AASHTO R 97 & ALDOT-210	+Loaded Truck	ALDOT-371 AASHTO T 308	1 per day per LOT	++ 1 per 700 tons
3. Asphalt Draindown	12 lb {5 kg}	AASHTO R 97 & ALDOT-210	+Loaded Truck	AASHTO T 305	As Required	As Required

* See ALDOT-370 "Quality Control and Quality Assurance Procedures and Responsibilities for Asphalt Plant Mix Production".
+ Beginning each production day, no sample for acceptance purposes shall be taken prior to the production of 50 tons. If the random number selected falls within the first 50 tons, the sample shall be taken from the first loaded truck following the truck containing the fiftieth ton produced.
++ One sample for each 500 tons {500 metric tons} for Section 420 mixes.
Note: The testing increment shall have a 150-ton buffer between each increment.
+++ Under AASHTO T 308, mixture calibration shall be used. The ignition furnace shall be equipped with an internal weighing system with microprocessor control where sample weight {mass} and percent weight {mass} loss is computed and produced on hard-copy output.

TABLE I (CONT'D.) — **SECTION 327 PLANT MIX BITUMINOUS BASE**
SAMPLING AND TESTING REQUIREMENTS FOR QC/QA PROJECTS

Control Parameter	Sample Size	Sampling Methods	Sampling Location	Testing Methods	ALDOT Testing Frequency	Contractor Testing Frequency
1. Asphalt Content *	ALDOT Sample = 90 lb {40 kg} Split into 2 equal samples	AASHTO R 97 & ALDOT-210	+Loaded Truck	ALDOT-354 or AASHTO T 308 ++++	1 per day per LOT	++ 1 per 700 tons
2. Maximum Specific Gravity *		AASHTO R 97 & ALDOT-210	+Loaded Truck	AASHTO T 209 (Flask determination with dry back)	1 per day per LOT	++ 1 per 700 tons
3. Air Void Content & VMA *	Contractor Sample = 90 lb {40 kg} Split into 2 equal samples	AASHTO R 97 & ALDOT-210	+Loaded Truck	ALDOT-370 & ALDOT-307	1 per day per LOT	++ 1 per 700 tons
4. Mixture Gradation *		AASHTO R 97 & ALDOT-210	+Loaded Truck	ALDOT-371 AASHTO T 308	1 per day per LOT	++ 1 per 700 tons
5. Mat Density *		ALDOT-210	Roadway	ALDOT-222 & ALDOT-350		As per Contractor's QC plan (ALDOT-370)
				ALDOT-403 AASHTO T 166 Method A AASHTO T 275 AASHTO T 331	^^ 1/3000 lane feet/lift {1/900 lane m/lift}	
6. Clay Content	Adequate Quantity	AASHTO R 90	Aggregate Stockpiles	AASHTO T 176	As Required	As Required
7. Asphalt Draindown	12 lb {5 kg}	AASHTO R 97 & ALDOT-210	+Loaded Truck	AASHTO T 305	As Required	As Required

* See ALDOT-370 "Quality Control and Quality Assurance Procedures and Responsibilities for Asphalt Plant Mix Production".
^^ Cores shall be taken by the Contractor and the density will be determined by the Department.
+ Beginning each production day, no sample for acceptance purposes shall be taken prior to the production of 50 tons. If the random number selected falls within the first 50 tons, the sample shall be taken from the first loaded truck following the truck containing the fiftieth ton produced.
++ The sample shall be one set of three Marshall samples or one set of two gyratory samples +++.
Note: The testing increment shall have a 150-ton buffer between each increment.
+++ When slag is used as an aggregate in the mixture, four Marshall samples or three gyratory samples shall be compacted. The test result the furthest away from the average of the four test results shall be discarded and the remaining three test results shall be averaged for use in the computation of air voids.
++++ Under AASHTO T 308, mixture calibration shall be used. The ignition furnace shall be equipped with an internal weighing system with microprocessor control where sample weight {mass} and percent weight {mass} loss is computed and produced on hard-copy output.

TABLE I (CONT'D.) — **SECTION 423 MIXES** — **(STONE MATRIX ASPHALT)**
SAMPLING AND TESTING REQUIREMENTS FOR QC/QA PROJECTS

Control Parameter	Sample Size	Sampling Methods	Sampling Location	Testing Methods	ALDOT Testing Frequency	Contractor Testing Frequency
1. Asphalt Content *	ALDOT Sample = 90 lb {40 kg} Split into 2 equal samples	AASHTO R 97 & ALDOT-210	+Loaded Truck	ALDOT-354 or AASHTO T 308 ++++	1 per day per LOT	++ 1 per 700 tons
2. Maximum Specific Gravity *		AASHTO R 97 & ALDOT-210	+Loaded Truck	AASHTO T 209 (Flask determination with dry back as required by procedure)	1 per day per LOT	++ 1 per 700 tons
3. Air Void Content & VMA *	Contractor Sample = 90 lb {40 kg} Split into 2 equal samples	AASHTO R 97 & ALDOT-210	+Loaded Truck	ALDOT-370 & ALDOT-307	1 per day per LOT	++ 1 per 700 tons
4. Mixture Gradation *		AASHTO R 97 & ALDOT-210	+Loaded Truck	ALDOT-371 AASHTO T 308	1 per day per LOT	++ 1 per 700 tons
5. Mat Density *		ALDOT-210	Roadway	ALDOT-222 & ALDOT-350		As per Contractor's QC plan (ALDOT-370)
				ALDOT-403 AASHTO T 166 Method A AASHTO T 275 AASHTO T 331	^^ 1/3000 lane feet/lift {1/900 lane m/lift}	
6. Clay Content	Adequate Quantity	AASHTO R 90	Aggregate Stockpiles	AASHTO T 176	As Required	As Required
7. Asphalt Draindown	12 lb {5 kg}	AASHTO R 97 & ALDOT-210	+Loaded Truck	AASHTO T 305	As Required	As Required

* See ALDOT-370 "Quality Control and Quality Assurance Procedures and Responsibilities for Asphalt Plant Mix Production".
^^ Cores shall be taken by the Contractor and the density will be determined by the Department.
+ Beginning each production day, no sample for acceptance purposes shall be taken prior to the production of 50 tons. If the random number selected falls within the first 50 tons, the sample shall be taken from the first loaded truck following the truck containing the fiftieth ton produced.
++ The sample shall be one set of three Marshall samples or one set of two gyratory samples +++.
Note: The testing increment shall have a 150 ton buffer between each increment.
+++ When slag is used as an aggregate in the mixture, four Marshall samples or three gyratory samples shall be compacted. The test result the furthest away from the average of the four test results shall be discarded and the remaining three test results shall be averaged for use in the computation of air voids.
++++ Under AASHTO T 308, mixture calibration shall be used. The ignition furnace shall be equipped with an internal weighing system with microprocessor control where sample weight {mass} and percent weight {mass} loss is computed and produced on hard-copy output.

TABLE I (CONT'D.) — **SECTION 424 MIXES** — **(SUPERPAVE)**
SAMPLING AND TESTING REQUIREMENTS FOR QC/QA PROJECTS

Control Parameter	Sample Size	Sampling Methods	Sampling Location	Testing Methods	ALDOT Testing Frequency	Contractor Testing Frequency
1.Asphalt Content *	ALDOT Sample = 135 lb {60 kg} Split into 2 equal samples	AASHTO R 97 & ALDOT-210	+Loaded Truck	ALDOT-354 or AASHTO T 308 ++++	1 per day per LOT	++ 1 per 700 tons
2. Maximum Specific Gravity *		AASHTO R 97 & ALDOT-210	+Loaded Truck	AASHTO T 209 (Flask determination with dry back as required by procedure)	1 per day per LOT	++ 1 per 700 tons
3. Air Void Content & VMA	Contractor Sample = 135 lb {60 kg} Split into 2 equal samples	AASHTO R 97 & ALDOT-210	+Loaded Truck	ALDOT-384 ALDOT-388 ALDOT-370	1 per day per LOT As needed	++ 1 per 700 tons
% Gmm @ Nd *						
4. Mixture Gradation & Dust to Asphalt Ratio *		AASHTO R 97 & ALDOT-210	+Loaded Truck	ALDOT-371 AASHTO T 308	1 per day per LOT	++ 1 per 700 tons
5. Mat Density *		ALDOT-210	Roadway	ALDOT-222 & ALDOT-350		As per the Contractor's QC plan (ALDOT-375)
				ALDOT-403 AASHTO T 166 Method A AASHTO T 275 AASHTO T 331	^^ 1/3,000 lane feet/lift {1/900 lane m/lift}	
6. Fine Aggregate Angularity * * FAA Note: The FAA test is not required for any pay item less than a full lot.	Adequate quantity to run AASHTO T 304, Method A or ASTM C 1252,Method A	AASHTO R 90	+Loaded Truck	AASHTO T 304, Method A Or ASTM C 1252, Method A	1 for the first full lot (2,800 tons {2,800 metric tons}) and 1 for the next 10,000 tons {10,000 metric tons} and 1 for each additional 20,000 tons {20,000 metric tons} or portion thereafter	1 for the first full lot (2,800 tons {2,800 metric tons}) and 1 randomly for the next 10,000 tons {10,000 metric tons} and 1 randomly for each additional 20,000 tons {20,000 metric tons} or portion thereafter
7. Clay Content	Adequate quantity	AASHTO R 90	Stockpile	AASHTO T 176	As required	As required
8. Asphalt Draindown	12 lb {5kg}	AASHTO R 97 & ALDOT-210	+Loaded Truck	AASHTO T 305	As Required	As Required

* See ALDOT 370 "Quality Control and Quality Assurance Procedures and Responsibilities for Asphalt Plant Mix Production".
** In virgin mixes, the sample may be taken from the cold feed conveyor.
^^ Cores shall be taken by the Contractor and the density will be determined by the Department.
+ Beginning each production day, no sample for acceptance purposes shall be taken prior to the production of 50 tons. If the random number selected falls within the first 50 tons, the sample shall be taken from the first loaded truck following the truck containing the fiftieth ton produced.
++ The sample shall be one set of two gyratory samples+++.
Note: The testing increment shall have a 150 ton buffer between each increment.
+++ When slag is used as an aggregate in the mixture, three gyratory samples shall be compacted. The test result the furthest away from the average of the three test results shall be discarded and the remaining two test results shall be averaged for use in the computation of air voids.
++++ Under AASHTO T 308, mixture calibration shall be used. The ignition furnace shall be equipped with an internal weighing system with microprocessor control where sample weight {mass} and percent weight {mass} loss is computed and produced on hard-copy output.

(c) Quality Assurance.

1. Acceptance Procedures.

All materials will be evaluated for acceptance and payment through the Department's Acceptance Procedures specified herein. The Department will be responsible for determining the acceptability and pay factor of the construction and materials incorporated therein.

The Department will utilize the Contractor's QC System test results for liquid asphalt binder content and laboratory compacted air void content for pay purposes except where:

a. The Department's Quality Assurance testing, as described in Item 3 below and Article 410.08, does not validate the quality of the material.
b. QC sampling and testing was not performed in accordance with specified procedures.

The Department will determine the sample locations.

The sampling and testing frequencies shall conform to the requirements given in Table 1 for a pay item when the accumulated amount of asphalt mix placed for that pay item exceeds 250 tons {250 metric tons}. The accumulated amount of asphalt mix shall be the current total amount of asphalt mix that has been placed beginning from the start of construction. The sampling and testing frequencies given in Table 1 may be waived by the Area Materials Engineer and the asphalt mix may be accepted by visual observation for a maximum accumulated asphalt mix placement quantity of 250 tons {250 metric tons} or less for any individual pay item. The Engineer will record

the results of the acceptance of the asphalt mix on form BMT-16 if sampling and testing is not required.

All conforming and nonconforming inspections and test results will be monitored in accordance with ALDOT-370 and shall be recorded on approved forms and charts which shall be kept up to date and complete and shall be available at all times to the Department during the performance of the work. Only those tests designated by the Department in advance as acceptance tests will be utilized in the computation of pay factors. Test properties shall be charted on forms that are in accordance with the applicable requirements of the Department. A copy of each chart and form to be used by the Contractor will be furnished by the Department. The Contractor shall furnish his own supply of the charts and forms. The Contractor or Producer may design their own forms and charts; however, these must be approved by the Engineer prior to their use.

A LOT is normally defined as 2,800 tons {metric tons} for Section 327, 423 and 424 mixes, and 2,000 tons {metric tons} for Section 420 mixes, consisting off our QC test sets of laboratory tests (liquid asphalt binder content and laboratory air voids or gradation), unless specifically stated otherwise in this item or elsewhere in the specifications. A LOT will usually consist of at least four density tests; however, a LOT may have fewer than four density tests. The Engineer will round a testing increment or a LOT to the nearest truckload of material.

A LOT lasting longer than thirty calendar days or a LOT with inactivity for longer than 30 calendar days will be terminated. Mix produced after the completion of the last full LOT, a terminated LOT, and small production projects will be evaluated and pay factors computed and may be accepted on the basis of less than four laboratory tests (liquid asphalt binder content and laboratory air voids or gradation).

Each LOT will be accepted on the basis of the actual number of test sets run for that LOT. If the production process is considered out of control (any individual test result for asphalt content, gradation (single sieve), or air voids has a pay factor equal to 0.80 computed from the "1 Test" row in Table II and Table III, or the "1 Test" column in Table VI, of Article 410.08 whichever is appropriate), production shall be suspended and corrections made as outlined in Article 410.08. Gradation pay factors are normally computed on each screen tested and then averaged, however, if any individual screen has a pay factor of 0.80 (before being averaged with the other screen(s)), the process is considered out of control.

The Contractor may voluntarily terminate a LOT when the pay factor will be less than 0.90 when calculated using the one test row of Table II and Table III and the one test column of Table VI in Section 410. If the Contractor terminates a LOT, production shall be suspended and corrections made as outlined in Article 410.08. The voluntary termination of a LOT may only be done once per pay item, per project.

All sampling, testing and computations for a LOT will be completed and pay factors provided the Contractor as soon as possible.

All sampling and testing of materials, including frequency of samples and tests for the Contractor's Quality Control and the Department's verification, shall be performed in strict conformance with the Department's Testing Manual as modified in Table I. This Manual (available on the ALDOT Internet Site) contains guidance for sampling and testing procedures from AASHTO, ASTM, and ALDOT procedures.

2. Acceptance or Rejection.

The decision of the Engineer will be final as to the acceptance, rejection, or acceptance at an adjusted payment of each LOT. Rejected LOTS shall be removed at no cost to the Department and replaced at the contract unit bid price.

3. Sampling of Lots and Sublots.

It is the intent of these specifications that each LOT (for mixture testing) and each SUBLOT (for mat density testing) will meet specification requirements at the time of initial evaluation. No resampling or retesting (other than referee testing described below) will be allowed. The Department will, however, perform at least one liquid asphalt binder content, one maximum specific gravity, one mixture gradation, and one set of laboratory compacted samples for air void content tests per day per Lot, as specified in Table I, to verify the Contractor's test results. If the Contractor is not required to perform a test that day (the tonnage calculated by the random number is not reached), the Department will not run a verification test. The Department will perform a verification test for each LOT, even where there is more than one LOT per day.

The Contractor will be notified by the Engineer at the point in production to procure mixture acceptance samples. The Contractor shall sample the mixture and split it into two samples: the

Contractor's primary sample and a referee sample. The portions of mixture for the referee sample shall be bagged, labeled, and stored for testing, if required. All referee samples will be kept by the Department until they are tested (if required).

The Contractor shall obtain a verification testing sample from each LOT each day for testing by the Department. The verification testing samples shall be taken at locations directed by the Engineer. These locations will be different from the Contractor's mixture acceptance sample locations. The Contractor may take half of each sample for verification testing. The Department will compare the verification seample to the closest (in tonnage) Contractor's primary sample. The sampling of Hot Mix Asphalt is outlined in ALDOT-380, Forms and Examples for Sampling and Computing Pay Factors for Hot Mix Asphalt.

4. Testing and Lot Verification.

Air voids shall be computed on the Contractor's sample by using the running average of the Contractor's last four maximum specific gravities and the individual bulk specific gravity. If slag is used as an aggregate in the mixture, the running average of the Contractor's four most recent determinations for the bulk specific gravity of the compacted mixture shall be used in the computation of the air voids for the Contractor's sample. The calculation of the running averages of both maximum specific gravity and bulk specific gravity shall start with the first LOT. The test strip is independent of the LOTs. Air voids shall be computed on the Department's sample by using the Department's individual maximum specific gravity and individual bulk specific gravity. The Department and the Contractor shall compare test results with each other for the above-mentioned testing increments. If there are no differences or if the differences are within the tolerances listed in Tables V or VI, Section 410, for each parameter, no further testing and analysis will be necessary and the Contractor's test values will be used in the computation of the appropriate LOT pay factor.

If the Contractor's air voids do not compare with the Department's test results, the Contractor shall re-compute test results using the individual maximum specific gravity and the individual bulk specific gravity for that particular testing increment and re-compare with the verification test result. If the results compare within the tolerances in Table V, Section 410, using the individual maximum specific gravities and the individual bulk specific gravity, no further testing will be required and the Contractor's running average of the last four maximum specific gravities and the individual bulk specific gravities will be used to compute air voids for pay factor determination.

Also, if the Contractor's air voids do not compare with the Department's test results, and the Contractor is using slag as an aggregate, the Contractor shall re-compute test results using the individual maximum specific gravity for that particular testing increment and the running average of the Contractor's last four bulk specific gravities and re-compare with the verification test result. If the results compare within the tolerances in Table V, Section 410, using the individual maximum specific gravity, no further testing will be required. If the results do not compare the Contractor shall re-compute test results using the individual bulk specific gravity for that particular testing increment and the running average of the Contractor's last four maximum specific gravities and re-compare with the verification test result. If the results compare within the tolerances in Table V, Section 410, using the individual bulk specific gravity, no further testing will be required. If the results do not compare, the Contractor shall re-compute test results using the individual bulk and individual maximum specific gravity for that particular testing increment and re-compare with the verification test result. If the results compare within the tolerances in Table V, Section 410, using the individual bulk and individual maximum specific gravity, no further testing will be required. The Contractor's running average of the last four bulk specific gravities and the last four maximum specific gravities will be used to compute air voids for pay factor determination.

If the results of the Department's verification test and the Contractor's test do not compare within the tolerances in Tables V or VI, Section 410, but yield the same pay factor for the LOT when the Department's result is substituted for the Contractor's result, no further testing will be required. Where the Contractor's test results and the Department's test results do not compare and cannot be resolved by the above mentioned methods but the pay factor dispute is between 1.00 and 1.02 the Contractor may elect to accept the 1.00 pay factor and waive referee testing.

When differences between test results of the verification samples are not within the tolerances listed in Tables V or VI, Section 410, and cannot be resolved by the above mentioned methods, referee testing will be required.

All referee samples will be tested by the Bureau of Materials and Tests, Central Laboratory, 3704 Fairground Road, Montgomery, AL 36110. The Bureau of Materials and Tests Central

Laboratory is an AASHTO accredited laboratory (see AASHTO R 18, Recommended Practice for Establishing and Implementing a Quality System for Construction Materials Testing Laboratories). All referee samples shall be submitted to the Bureau of Materials and Tests within 7 days after the close of a Lot. The contractor shall be notified within 24 hours after the close of a Lot that a referee sample is needed. The Bureau of Materials and Tests shall report the results of the referee testing within 7 days of receiving the sample. If these time requirements are not met, then the contractor's testing results shall govern acceptance.

5. Referee Testing

a. Laboratory:

All testing increments of the referee samples for the entire LOT shall be tested in the Bureau of Materials and Tests Hot Mix Laboratory for the pay factor parameter(s) (liquid asphalt binder content, laboratory compacted air voids, or gradation) in question. The Contractor's results (using the individual air voids, individual bulk specific gravities and running average of maximum specific gravities) will be compared to the Bureau of Materials and Tests results (using Materials and Tests individual bulk and maximum specific gravities) for each testing increment in the LOT. When the Contractor's results and the Bureau of Materials and Tests results are within the tolerances listed in Tables V or VI, Section 410, the Contractor's results will be used. When the Contractor's results are not within the tolerances listed in Tables V or VI, Section 410, the Bureau of Materials and Tests Central Laboratory results will be used for final pay factors. The Bureau of Materials and Tests Central Laboratory will record the Contractor's field results and the Central Laboratory's results of the parameter(s) in question on form BMT-135.

For each testing increment these results, either the Contractor's or the Bureau of Materials and Tests', will be used in the computation of the appropriate LOT pay factor.

Should differences between test results, that are not within the tolerances listed in Table V or VI, Section 410, for liquid asphalt binder content, air voids, or gradation continue for two consecutive days, operations shall be halted until testing discrepancies can be resolved. The Bureau of Materials and Tests will monitor testing procedures by Department and Contractor technicians until consistent test results are achieved.

b. Cores:

If the Contractor believes that the core density values determined by the State are in error, the Contractor shall notify the Area Materials Engineer in writing that referee testing is requested. Using the original cores, the Area will again determine the densities of the cores in question using a technician different from the technician who originally determined the core density. If these new densities result in a different pay factor, the new pay factor shall be applied to the tonnage in question (this may increase or decrease the Contractor's pay adjustment).

6. Adjusted Payment for Deficiencies.

The payment for each LOT will be adjusted on the basis of acceptance test results in accordance with the requirements given in this Section. Accurate records shall be kept of the quantity (tonnage) of plant mix in each LOT.

Pay factors shall be determined for each LOT from the values given in Tables II, III, IV, and VI, Section 410, in accordance with the following:

Pay Factor For:	Mix 327	Mix 420	Mix 423	Mix 424
Air Voids	N/A	N/A	Table II	Table III
Asphalt Content	Table II	Table II	Table II	Table III
Mat Density	N/A	N/A	Table IV	Table IV
Gradation	N/A	Table VI	N/A	N/A

The lowest numerical pay factor in a Lot will be applied to the contract price for the total tonnage {metric tonnage} in the LOT. This will result in an adjustment to the compensation for the Lot that will be shown in a separate line item on the payment estimates.

Pay factors above 1.00 will not be applied to mixes that are tested on fewer than three characteristics or when there are less than four laboratory tests (percent liquid asphalt binder and laboratory air voids or gradation) per characteristic; it is not necessary to obtain four roadway densities to obtain a pay factor above 1.00. When the pay factor is calculated to be greater than 1.00, a pay factor of 1.00 will be applied.

Pay factors above 1.00 will not be applied to mixes where the roadway density requirement has been lowered below 94%.

(d) Adjustment Period.

During start-up operations, an adjustment period (test strip) as described below shall be allowed. The purpose of the adjustment period will be to permit the Contractor to adjust his production process and for Contractor QC personnel and ALDOT QA personnel to calibrate and coordinate their testing procedures. The Contractor has the option of running a test strip or waiving the test strip. The option to place or waive a test strip shall be in writing to the Project Manager and the Area Materials Engineer prior to any production and placement. The Contractor assumes the risk of milling and relaying unacceptable mix with no additional compensation if the test strip is not utilized.

A test strip of not more than 500 tons {500 metric tons} shall be constructed. If the placement of a test strip is not completed the same day it is begun, the Contractor shall construct a new test strip. Production shall stop until the Contractor has completed one liquid asphalt binder content, one air void content, and four mat density tests for mixes other than 327 and 420. For 327 and 420 mixes the Contractor shall complete one liquid asphalt binder content and one gradation. The pay factors for liquid asphalt binder content, air void content, and gradation will be calculated using the one test row of Table II and Table III and the one test column of Table VI, and the pay factor for mat density will be calculated using the four test column of Table IV in Section 410. The production point at which the mix shall be sampled shall be determined by the Contractor. This sample does not have to be randomly selected, but should be representative of the mix produced. Contractor mat density tests shall be performed with non-destructive density testing devices, meeting the requirements of Section 306, which have been calibrated for the layer being placed according to ALDOT-222, ALDOT-350, or Section 306. The Contractor shall cut cores at these locations and immediately turn the cores over to the Department for density measurements and determination of the pay factor. The Department will conduct the same tests for verification at the same time the Contractor is conducting his tests. If a pay factor of less than 1.00 is obtained using the one test row of Table II and Table III and the one test column of Table VI, and using the four test column of Table IV in Section 410, a second test strip consisting of 200 tons {200 metric tons} shall be constructed. If a pay factor of less than 1.00 is obtained using the one test row of Table II and Table III and the one test column of Table VI, and using the four test column of Table IV in Section 410 in the second test strip, additional 200 ton {200 metric ton} test strips shall be constructed until pay factors are equal to 1.00, at which time production can begin. A test strip is determined to be complete when the results of the tests are known.

The Engineer may require any test strip to be removed and replaced at no cost to the Department if the pay factor determined from the four test row for mat density or the one test row for other tests is 0.80. For actual payment purposes, a pay factor of 1.00 will be used for all first and second test strips allowed to remain in place. Pay factors will be applied to the third and all subsequent 200 ton test strips at the average of the computed rate (using the one test row) and 1.00.

SECTION 107
LEGAL RELATIONS AND RESPONSIBILITY TO THE PUBLIC

107.01 Laws to be Observed.

The Contractor shall keep fully informed of all Federal and State laws, all local laws, ordinances, and regulations and all orders and decrees of bodies or tribunals having any jurisdiction or authority, which in any manner affect those engaged or employed on the work, or which in any way affect the conduct of the work. He shall at all times observe and comply with all such laws, ordinances, regulations, orders, and decrees; and shall protect and indemnify the State and its representatives against any claim or liability arising from or based on the violation of any such law, ordinance, regulation, order, or decree, whether by himself or his employees.

The Contractor shall provide for the safety of his employees and the public along with protection of property in the performance of the work. Particular reference is made to the Federal Occupation Safety and Health Act Title 29, CFR Part 1926 (Published December 16, 1972, and all applicable amendments) for construction work and Part 1910 (Published May 29, 1971, and all applicable amendments) for general industry standards for those materials not covered in Part 1926, which is a condition of the contract and shall be a condition of any subcontract entered into pursuant thereto.

All ocean shipping of materials and products used on Federal-aid highway projects shall comply with the requirements of Part 381, Title 46, CFR. The Prime Contractor shall submit copies of all commercial ocean bills of lading to the Maritime Administration in Washington at the following address:

U.S. Department of Transportation
Maritime Administration
Office of Cargo and Commercial Sealift
1200 New Jersey Avenue SE
2nd Floor East – Mail Stop 2
Washington, DC 20590

The Contractor's letter of transmittal shall show their address, the project number, project location, and the type materials involved.

107.02 Permits, Licenses and Taxes.

The Contractor shall procure all permits, and licenses, pay all charges, fees, and taxes, and give all notices necessary and incidental to the due and lawful prosecution of the work.

107.03 Patented Devices, Materials, and Processes.

If the Contractor employs any design, device, material, or process covered by letters of patent or copyright, he shall provide for such use by suitable legal agreement with the patentee or owner. The Contractor and the Surety shall indemnify and save harmless the State, any affected third party, or political subdivision from any and all claims for infringement by reason of the use of any such patented design, device, material or process, or any trademark or copyright, and shall indemnify the State for any costs. expenses, and damages which it may be obliged to pay by reason of an infringement, at any time during the prosecution or after the completion of the work.

107.04 Restoration of Surfaces Opened by Permit.

The right to construct or reconstruct any utility service in the highway or street or to grant permits for same, at any time, is hereby expressly reserved by the Department for the proper authorities of the municipality in which the work is done.

When an individual, firm or corporation is authorized through a duly executed permit from the Department, the Contractor shall allow parties bearing such permits, and only those parties, to make openings in the highway. When ordered by the Engineer, the Contractor shall make in an acceptable manner, all necessary repairs due to such openings and such necessary work will be paid for as extra work, or as provided in these specifications, and will be subject to the same conditions as original work performed.

107.05 Federal Aid Participation.

When the United States Government participates in the cost of the work covered by the contract, the work shall be under the supervision of the State but subject to the inspection and approval of the proper officials of the United States Government and in accordance with the applicable Federal Statutes and rules and regulations made pursuant thereto (Reference Title 23, U.S. Code as amended).

Such inspection shall in no sense make the Federal Government a party to this contract and will in no way interfere with the rights of either party hereunder.

The Contractor and Subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 49 CFR 26 in the award and administration of USDOT assisted contracts. Failure by the Contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy, as the ALDOT deems appropriate.

107.06 Sanitary, Health and Safety Provisions.

The Contractor shall provide and maintain in a neat, sanitary condition such accommodations for the use of his employees as may be necessary to comply with the requirements of the State and local Board of Health, or of other bodies or tribunals having jurisdiction.

Attention is directed to Federal, State and local laws, rules and regulations concerning construction safety and health standards. The Contractor shall not require any worker to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his health or safety.

107.07 Public Convenience and Safety.

(a) Care of Traffic.

The Contractor shall at all times conduct his work so as to ensure the least possible obstruction to traffic. The safety and convenience of the general public and residents along the highway shall be provided for by the Contractor as specified under Article 104.04.

The Contractor shall have no greater length or amount of work under construction than he can prosecute properly with due regard to the rights of the public.

The Contractor shall immediately clean up any spillage resulting from hauling operations along or across any public traveled way.

The Contractor shall notify the Engineer before starting any construction work that might inconvenience or endanger traffic and shall make such arrangements for the safety and convenience of traffic as may be required by the Engineer.

(b) General Public.

In general, vehicles of the traveling public shall have preference over those of the Contractor to the end that vehicles of the traveling public shall not be unduly delayed for the convenience of the Contractor. When so directed the Contractor shall station flagmen, whose sole duties shall consist of directing traffic safely and expeditiously through or around the work.

Materials and equipment on the right of way shall be so placed as to ensure minimum danger to the traveling public.

Where traffic passes through construction, a suitable width shall be maintained level and smooth to provide satisfactory passage. This width shall be watered or treated with dust control agents as directed to prevent dust nuisance. Soil aggregate, aggregate, or other suitable material shall be spread where and as directed by the Engineer to facilitate movement of traffic over soft portions of this width. Traffic shall be maintained over or around structures and culverts.

(c) Cooperation with Fire Department.

The Contractor shall arrange his work so that there will be no undue or prolonged blocking of business establishments. Fire hydrants shall be kept accessible at all times. In the absence of local ordinances, no obstruction shall be placed within 15 feet {5 m} of a fire hydrant. The Contractor shall notify the Chief of the Fire Department in writing 24 hours before it becomes necessary to block a cross street.

(d) Compensation.

The Contractor shall comply with all the requirements for public safety and convenience listed in this Article without extra compensation, except for the items of temporary surface material, Section 430, which shall be paid for at the contract unit price, or as extra work if the contract does not contain unit prices for these items.

107.08 Railway-Highway Provisions.

(a) Notification.

No work of any character shall be commenced on the railroad right of way until the railroad company has been duly notified by the Contractor in writing (with a copy forwarded to the Engineer) of the date he proposes to begin work and until an authorized representative of the railroad company is present, unless the railroad company waives such requirement.

(b) Inspection By Railroad Company.

All changes in approved plans and all work performed by the Contractor involving railroad crossings shall be subject to the inspection and approval of the chief engineer of the railroad company, or his authorized representative. Any precautions considered necessary by said chief engineer to safeguard the interests of the railroad company shall be taken by the Contractor without extra compensation. The State shall not be held responsible for delay to the Contractor's work due to any delay in securing such approval of construction features or changes therefrom; and any additional cost incurred by the Contractor due to such delay shall be considered as completely covered by the contract unit prices for the various items of work involved in the contract. For such delays, working days will not be charged on working day contracts, and appropriate time extensions will be granted for contracts on a calendar day or date basis.

If work remains to be completed after the expiration of contract time the Contractor shall reimburse the Department for all of the costs charged by the railroad company for the inspection and monitoring of the remaining work.

(c) Temporary Grade Crossing.

The Contractor shall make all arrangements with Railway Companies for the establishment of any temporary crossing to be used by the Contractor for transporting materials and equipment across their tracks. Permission for such a crossing must be obtained from the Railway Engineer prior to establishment of the crossing. All costs for installation, maintenance, any necessary watching and flagging thereof, and the removal shall be borne by the Contractor. The Contractor shall so plan his work so as not to delay Railroad Company operations.

107.09 Construction in Wetlands and Over or Adjacent to Waters of the United States.

(a) General.

Section 404 of the Federal Water Pollution Control Act of 1972 sets forth certain restrictions and requirements for materials placed in waters of the United States that are applicable to construction over or adjacent to waters of the United States. The Department will obtain any special permits necessary for the construction of the project within the scope of the design details of the contract plans and the specifications for the project. Generally, compliance with the above law can be accomplished by following the plan details along with adhering to the Specification requirements of Articles 107.13, 107.20, 107.21, 107.22, 107.23, and Section 665, utilizing the methods outlined in Section 665.

The Contractor will be required to operate within the limits of any special permit issued for the construction work on a project.

Attention is directed to the fact that construction methods or work in the flood plain area varying from plan details, specifications and permit proposed strictly for the convenience of the Contractor will require additional permit clearance. Any additional clearance, permit, etc. necessary to comply with the above noted laws shall be the sole responsibility of the Contractor and clearance for such work must be in the Engineer's hands before he will allow such work to proceed.

(b) Work Over Navigable Waters.

In addition to the provisions of Subarticle (a) above, all work over or on navigable waters shall be so conducted that free navigation of waterways will not be interfered with and that the existing navigable depths will not be impaired except as allowed by permit issued by the U.S. Coast Guard and/or U.S. Army Corps of Engineers, as applicable. The Department will obtain the necessary permit for the construction of the project within the scope of the design details shown by the plans, any special conditions will be noted on the plans or included in the contract documents. Should the Contractor, for his convenience, wish to use construction methods or perform work outside of the scope of the permit obtained by the Department, he shall be solely responsible for obtaining any additional work permit from the appropriate authority.

(c) Special Conditions

Should the required work be permitted under a US Army Corps of Engineers "Nationwide Permit" or "Individual Permit", the Contractor shall abide by all the applicable requirements for each type of permit. Both types of permits are subject to the general requirements given in 33 CFR Part 330 "Nationwide Permit Program".

A copy of the permit and its requirements will be included in the Construction Best Management Practices Plan (CBMPP) and made available for review during the project advertising period. A copy may be obtained from the ALDOT Office Engineer, and the successful bidder will be given a copy.

107.10 Barricades and Warning Signs.

The Contractor shall provide, erect and maintain all necessary barricades, suitable and sufficient lights, danger signals, signs, and other traffic control devices; shall provide qualified flagmen where necessary to direct traffic; and shall take all necessary precautions for the protection of the work and safety of the public. Highways or parts of the work closed to traffic shall be protected by effective barricades; obstructions shall be delineated; suitable warning signs shall be provided to properly control and direct traffic. All signs, barricades, etc. shall be reflectorized in an approved manner.

The Contractor shall erect warning signs in advance of any place on the project where operations may interfere with the use of the road by traffic, and at all intermediate points where the new work crosses or coincides with an existing road. Such warning signs shall be placed and maintained in accordance with the plans furnished. No signs, barricades, lights or other protective devices shall be dismantled or removed without permission of the Engineer.

All barricades, warning signs, lights, temporary signs, and other protective devices shall conform with the MUTCD.

107.11 Use of Explosives.

(a) General.

It is the intent of this Article to provide general guides for the handling and use of explosives. The Contractor shall use all precaution, control, and safety features outlined by this Article as well as any additional requirements felt necessary to ensure the safety of life or property in the area of operations.

(b) Control.

When the use of explosives is necessary for the prosecution of the work, the Contractor shall use the utmost care not to endanger life or property. Blasting operations shall be performed under the most skilled supervision. Where necessary and at any point of special danger, the Contractor shall use suitable mats or other approved methods to smother his blast. No loaded hole shall be left unattended.

Where blasting is to be done in streams, the Contractor shall notify the Conservation Department sufficiently in advance to permit on-the-site observation by Conservation Department personnel at the time of the blast.

Where blasting is performed in urban areas or areas that are heavily populated, extreme care shall be taken to minimize the amount and degree of ground vibration, noise, overpressure, and flying debris.

(c) Storage of Explosives.

All explosives shall be stored in a safe manner, in compliance with local, State, and Federal laws and ordinances.

(d) Warning of Blasting.

The Contractor shall warn each utility company having structures in proximity to the blasting area of his intentions to use explosives. Such warning shall be sufficiently far in advance of blasting to enable the company to protect its property. Such warning, however, shall not relieve the Contractor of responsibility for any damage resulting from blasting. The Contractor shall erect suitable signs on all roads in the immediate vicinity of blasting operations, warning of blasting activity. The signs shall also include warning that all portable radio transmitters should be turned off while in the vicinity. If required, the Contractor shall control traffic by use of flagmen and guards in the danger zone of blasting.

In all urban areas, and other heavily populated areas when designated by the plans or proposal, the Contractor or his insurer shall conduct a pre-blast survey of all structures to determine the existing or preblasting condition, such survey being a written description with special emphasis on defects and documented with appropriate photographs. This survey is intended to serve as a basis of comparison for any post-blast claims that may arise. The Contractor or his insurer shall obtain the services of a competent vibration or seismologist consultant to conduct both blast noise, vibration and overpressure surveys at periodic intervals during the progress of the blasting operations. It is the intent of this Section to serve as protection to the Contractor to minimize the post-blast claims and not to require unwarranted work. The Contractor shall use every precaution available and practical to minimize ground vibration, noise and overpressure.

The Contractor and his surety shall indemnify and save harmless the State, the Director and all its representatives from all claims for damages arising out of the use, transportation, or storage of explosives.

107.12 Protection and Restoration of Property, Landscape and Utility Facilities.

(a) Property and Landscape.

The Contractor shall not enter upon private property for any purpose without permission first being obtained from the owners and lessees. The Contractor shall be responsible for preservation of all public and private property, utilities, monuments, highway signs, etc. on or adjacent to the highway. He shall not remove, injure, or destroy without proper authority trees or plants that are shown on the plans or ordered by the Engineer to remain on or adjacent to the right of way. The Contractor shall protect from disturbance all land markers until an authorized agent has witnessed or referenced the locations and shall not move them until directed. The Contractor shall notify the Engineer immediately upon discovery of artifacts or other articles of possible archeological value revealed by his operations, and shall carefully preserve them and prevent disturbance of the site until the Engineer has had opportunity to arrange appropriate disposal. Highway signs and markers shall be carefully removed as the grading operations progress and stored in a manner to keep them clean and dry.

When the work affects the foundation support of any building along the work, the Contractor shall give property owners and lessees direct and sufficient notice to support such buildings. The Contractor

and his surety shall hold the State, the County, the Municipality, the Director, and the Engineer harmless from any damage resulting from undercutting any such buildings.

The Contractor shall be solely and exclusively responsible for any and all restoration, repair or replacement of public and private property due to, caused by, or as a result of any act, omission, negligence or misconduct of the Contractor. The Contractor shall provide an appropriate remedy as approved by the Engineer.

Failure on the part of the Contractor to satisfy the requirements given in this Subarticle, shall result in the Engineer affecting an appropriate remedy at the Contractor's expense.

(b) Utilities.

1. Where the Contractor's operations are adjacent to utilities or other property, damage to which might result in expense, loss, or inconvenience, work shall not be begun until all arrangements necessary for property protection has been made.

The Contractor shall be responsible to the owners and operators of such property for any damage, loss, or inconvenience. He and his surety shall defend any suits, actions, or claims of any character brought due to injuries or damages resulting from performance of the work under this contract. If required by the Director, he shall furnish a certificate of his public liability and property damage insurance to each utility company or individual owning or operating any of the properties affected in the guarantee of this responsibility.

2. The Contractor shall cooperate with the owners of any utilities in their removal and rearrangement operations so that the utility companies may conduct their operations in a reasonable manner with a minimum of duplication of the work and interruption of services. The Contractor will be furnished by the Department information that is reasonably available in regard to existing or proposed new utilities, but the accuracy of such information is not guaranteed by the Department. It shall be the Contractor's responsibility to secure information necessary for proper handling and coordination of utility work. He shall give at least 48 hours written notice to owners or operators of all properties that may be affected by his operations before beginning such operations. He shall not hinder or interfere with utilities in protection or operations of the properties. When such properties are endangered, the Contractor at his own expense shall maintain flagmen or watchmen and other necessary precautions to avoid interruption of service or danger to life or property. He shall promptly replace, restore, or make good in an acceptable manner any injury or damage caused by his operations.

3. In event of interruption to water or utility services as a result of the Contractor's operations, he shall notify promptly the proper authority and cooperate with the said authority in restoration of service as promptly as possible.

107.13 Woodland Protection, Conservation, Abatement of Water Pollution and Quarantine Regulations.

The Contractor shall comply with all regulations of the State Fire Marshal, Conservation Department, Forestry Department, or regulatory body governing the protection of forests and other conservation areas, and the carrying out of work within such areas, and shall observe all laws and regulations with respect to the performance of work in such areas. He shall keep the areas in an orderly condition, dispose of all refuse, obtain permits for the construction and maintenance of all construction camps, stores, warehouses, residences, sanitary facilities, and other structures in accordance with the requirements of the Forest or Conservation supervisor.

It shall be the Contractor's responsibility to contact the local representatives of the Alabama Department of Agriculture and Industries, and the U.S. Department of Agriculture in order to advise himself, his agents, and his employees regarding quarantined areas and quarantine restrictions affecting his organization while operating within, from or through such areas. Special attention is directed to soil and/or machinery treatment which may be required when operating in, from or through quarantined areas. A list of agents of these two Departments will be furnished the Contractor upon request prior to beginning of his construction or maintenance operations. The State will not be liable for any additional compensation for extra costs arising from quarantine restrictions or penalties.

The Contractor's attention is directed to the requirements for stormwater management as noted in Article 107.21 along with the taking of all reasonable precautions to prevent and suppress fires and other detrimental items which may be caused by construction operations. This includes protecting streams, lakes and reservoirs from contamination by siltation or other harmful materials, and the use of conservation practices of the Conservation Services by the Contractor, his employees and subcontractors during the work, which will include but are not limited to the following:

1. Diligently undertake precautions for the prevention of and for suppressive action in the event of fire resulting from highway construction. This will require the Contractor to –
   a. Comply with all State laws, rules and regulations for prevention and suppressive action for forest fires.
   b. Prepare and submit to the Department a fire prevention and control plan. The fire prevention and control plan must be on file and in effect before work on the item of Clearing and Grubbing will be permitted.
   c. Comply with the fire plan noted in Item 2 above. When a burn permit is required, the permit number shall be provided to the Engineer prior to performing the burning operation.
2. Unmerchantable material including tops, branches, etc., may be disposed of by piling and burning as directed. Alternate methods of disposal, including any of the following methods or combinations of methods (lop and scatter, chip, broadcast, burn, remove, pile only) must be approved in advance by the Engineer.
3. Protect and preserve the soil and vegetative cover and scenic and aesthetic values on the right of way and on adjacent lands so far as practical and consistent with the construction, operation and maintenance of the highway. An allowable disturbance of soil and vegetation cover outside the construction limits may be shown on the plans. The Contractor's proposed disturbance of soil and vegetation cover outside of the construction limits will only be allowed upon written approval of the Engineer.
4. The Contractor shall be responsible for the prevention and control of soil erosion and gullying within the right of way covered by the project and the lands immediately adjacent thereto as a result of the road construction, and shall revegetate with grass, or other herbaceous plants, ground where the soil has been exposed. Slopes in channel changes on all branches and creeks shall be seeded and fertilized above the water line and in no case will the toe of fill slopes be allowed to fall within stream or creek channels unless adequate slope protection is placed in accordance with plan details or as directed by the Engineer. All soil left within the right of way shall be leveled off and/or dressed out and seeded or sprigged in a manner that will permit healing of ground surface and present a pleasant appearance.
5. Construction operations shall be planned and conducted in such a manner so as to prevent when necessary and otherwise minimize pollution of streams, lakes and reservoirs with sediment or other harmful material used in the construction of the project.
6. Waste, loose soil or other materials removed from the roadway or channel changes shall not be deposited in live streams. Depositing material into the streams or stream channel where it would be washed away by high stream flows will not be permitted. Surplus material may be deposited only in disposal areas approved by the Engineer. Disposal areas outside of the project right of way must be operated so as to blend into the surrounding area utilizing an erosion control plan, etc. as prescribed for the use of offsite areas in Article 106.01 with any cost thereof considered incidental to the use of the disposal area. Disposal areas within the project right of way shall be dressed and treated as directed using erosion control items provided in the contract for payment of directed work.
7. The hauling of materials, including logs, brush, and debris by fording live streams will not be permitted. Temporary bridges or other structures must be provided for this purpose.
8. Operations of mechanized equipment in live streams or stream channels will not be permitted except in areas where channel changes, retaining walls, temporary or permanent bridges or other such work is required by the plans, or directed.
9. Fuels, oils, bitumen or other greasy or chemical substances originating from construction operations shall not be allowed to enter or be placed where they may enter a live steam.
10. The outlet ends of all channel changes shall be so laid out and aligned as to provide direct flow into old stream beds without an abrupt direction change.
11. The operations for any material pit located within sight of the project right of way or any other State or Federal highway shall be conducted in accordance with the requirements given in Article 106.01, allowing adequate space for conservation of existing natural screenings or permit the installation of screen planting between the road surface and the disturbed area. Pit sites shall be dressed to obliterate any unsightly appearance and treated in such a manner that erosion of the pit will not occur and result in the pollution of the water shed area.

107.14 Responsibility for Damage Claims.

(a) General.

The Contractor shall indemnify and save harmless the State, the Department, the County, the Municipality, the officers and employees from all suits, actions, or claims of any character brought because of any injuries or damages received or sustained by any person, persons, or property due to the operations of the Contractor; or because of or in consequence of any neglect in safeguarding the work; or through use of unacceptable materials in constructing the work; or because of any act or omission, neglect, or misconduct of the Contractor; or because of any claims or amounts arising or recovered under the "Workmen's Compensation Act" or any other law, ordinance, order, or decree; and so much of the money due the Contractor under and by virtue of his contract as may be considered necessary by the Department for such purpose, may be retained for the use of the State; or, in case no money is due, his surety will be held liable until such suit or suits, action or actions, claim or claims for injuries or damages as aforesaid shall have been settled and suitable evidence to that effect furnished to the Department; except that money due the Contractor will not be withheld when the Contractor produces satisfactory evidence that he is adequately protected by public liability and property damage insurance.

The State will not be liable to the Contractor for damage or delays resulting from work by third parties or by injunctions or other restraining orders obtained by third parties except as noted in Subarticle 108.07(b).

(b) Temporary Stream Crossings.

When the Contractor is required to construct temporary stream crossings, the responsibility of the Contractor as above set forth shall extend to and include such structures together with their approaches.

(c) Reporting Crashes.

The Contractor shall submit a verbal report to the Engineer no later than the next working day after the occurrence of all crashes occurring on the project which involve the public or the Contractor's forces. Crashes involving fatalities shall be verbally reported within eight hours. The Contractor shall follow this verbal report with a written report within ten calendar days after the crash. The report shall contain complete information on the crash including names, addresses of persons involved, and names and addresses of witnesses.

107.15 Liability Insurance.

The Contractor, without extra compensation, shall carry insurance of the following kinds and amounts in addition to any other forms of insurance or bonds required under the terms of the contract specifications. All insurance shall be by companies authorized to do business in Alabama involving these types of insurance. Before beginning work, the Contractor shall have on file with the Department's Bureau of Office Engineer a valid insurance certificate showing the amounts of insurance carried and the risks covered thereby, or a copy of the policies, covering the requirements outlined herein in this Article, along with Workmen Compensation coverage, before he will be allowed to perform any work on a contract.

It shall be the Contractor's responsibility to provide the information on his coverage in a timely and acceptable manner. The Department will not be responsible for delays or damages caused by failure on his part to provide this information in a timely, acceptable manner.

Certificates of coverage shall be on the Department's Form OE-04, or a form acceptable to the Department, that provides all of the information required by Form OE-04. Certificates shall have an original signature of the local (within the State of Alabama) representative of the insurance company providing coverage.

The insurance coverage shall be provided on a continuous basis from the date work begins until the contract has been completed. Certificates of insurance shall indicate the policy period of the coverage. Should insurance coverage expire before the work is complete or the insurance company cancels the policy (30 day notice required), work on the project for the construction firm involved will be halted until a notice of renewal of the coverage is received by the Bureau of Office Engineer. The Department will not be responsible for any delays, damages, or claims on the part of the contracting firm not providing renewal certificates in a timely and acceptable manner. If work is halted as outlined above, working time will be charged as outlined in Subarticle 108.08(a).

(a) Contractor's Bodily Injury Liability and Property Damage Liability Insurance.

The Contractor without extra compensation shall carry for himself, and shall require from all Subcontractors on the contract, until the contract is completed, with respect to the operations he or the Subcontractors perform, both premises operations and independent contractor's coverages, contractor's bodily injury liability insurance providing for a limit of not less than $100,000 for all damages arising out of bodily injury to or death of one person, and subject to that limit for each person, a total limit of $300,000 for all damages arising out of bodily injury to or death of two or more persons in any one occurrence.

The Contractor without extra compensation shall carry for himself, and shall require from all Subcontractors on the contract, until the contract is completed, with respect to the operations he or the Subcontractors perform, both premises operations and independent contractor's coverages, contractor's property damage liability insurance providing for a limit of not less than $50,000 for all damages arising out of injury to or destruction of property in any one occurrence and a total of $100,000 for all occurrences during the policy period.

(b) Railroad's Protective Bodily Injury Liability and Property Damage Liability Insurance.

When the contract specifies such, the Contractor shall carry insurance for himself and insurance in the name of the railroad company in the amounts and under the terms specified in special provisions provided in each contract; otherwise, the provisions of Subarticle 107.15(a) shall apply.

(c) Automobile and Truck Bodily Injury Liability and Property Damage Liability Insurance.

The Contractor without extra compensation shall carry for himself and shall require from all Subcontractors and all owners of automobiles or trucks rented or hired on the contract, until the contract is completed, automobile and truck bodily injury liability and property damage liability insurance for not less than the limits prescribed by the Alabama Financial Responsibility Law. The Contractor also shall carry for himself insurance for non-owned and hired automobiles and truck coverage to at least the limits prescribed by the Alabama Financial Responsibility Law.

107.16 Opening Sections of Project to Traffic.

Opening of sections of the work to traffic prior to completion of the entire contract may be desirable from a traffic service standpoint or may be necessary due to conditions inherent in the work, or by changes in the Contractor's work schedule, and may be necessary due to conditions or events unforeseen at the time of the contract. Such openings as may be necessary due to any of the foregoing conditions shall be made when ordered by the Engineer. Under no condition shall such openings constitute acceptance of the work or a part thereof, or a waiver of any provisions of the contract.

The plans and/or special provisions shall state, insofar as possible, which sections shall be opened prior to completion of the contract. On any section opened by order of the Engineer, whether covered on the plans or in the special provision or not, the Contractor shall not be required to assume any expense entailed in maintaining the road for traffic. Such expense shall be borne by the Department or compensated for in a manner provided in Article 109.04. On such portions of the project which are ordered by the Engineer to be opened for traffic, in the case of unforeseen necessity which is not the fault of the Contractor, compensation for additional expense, if any, to the Contractor and allowance of additional time, if any, for completion of any other items of work on the portions of the project ordered by the Engineer to be opened in the event of such unforeseen necessity, shall be as set forth in a change order mutually agreed on by the Engineer and the Contractor as set forth herein.

If the Contractor is dilatory in completing shoulders, drainage structures, or other features of the work, the Engineer may so notify him in writing and establish therein a reasonable period of time in which the work should be completed. If the Contractor is dilatory or fails to make a reasonable effort toward completion in this period of time, the Engineer may then order all or a portion of the project opened to traffic. On such sections which are so ordered to be opened, the Contractor shall conduct the remainder of his construction operations so as to cause the least obstruction to traffic and shall not receive any added compensation due to the added cost of the work by reason of opening such section to traffic.

On any section opened to traffic under any of the above conditions, whether stated on the plans or in the Special Provisions or opened by necessity of Contractor's operations, or unforeseen necessity, any damage to the highway not attributable to traffic which might occur on such section (except slides) shall be repaired by the Contractor at his expense. Slide corrections performed by the Contractor shall be compensated for in accordance with the provisions of Article 210.10.

107.17 Contractor's Responsibility for Work.

Until final written acceptance of the project by the Engineer, the Contractor shall have the charge and care thereof and shall take every precaution against injury or damage to any part thereof by the action of the elements or from any other cause, whether arising from the execution or from the nonexecution of the work. The Contractor shall rebuild, repair, restore and make good all injuries or damages to any portion of the work occasioned by any of the above causes before final acceptance and shall bear the expense thereof except damage to the work due to unforeseeable causes beyond the control of and without the fault or negligence of the Contractor, including but not restricted to acts of God such as earthquake, tidal wave, tornado, hurricane or other cataclysmic phenomenon of nature, or acts of the public enemy or of governmental authorities.

Where a roadway is open to traffic, damage caused by public traffic to any acceptably installed permanent item(s) of work shall be repaired by the Contractor before final acceptance. Damage to portable impact attenuators shall be repaired by the Contractor as necessary. If the damage to these items was not caused by the fault or negligence of the Contractor, then the Contractor will be compensated for the repair work either at the contract unit bid price(s) of the original item(s) of work or as extra work, as determined by the Engineer.

In case of suspension of work, the Contractor shall be responsible for the project, provide for normal drainage and shall erect any necessary temporary structures, signs, or other facilities at his expense. During such period of suspension of work, the Contractor shall properly and continuously maintain in an acceptable growing condition all living material in newly established plantings, seedings, and soddings furnished under his contract, and shall take adequate precautions to protect new tree growth and other important vegetative growth against injury.

107.18 Furnishing Right-Of-Way.

The Department will be responsible for the securing of all necessary rights-of-way in advance of construction. Any exceptions will be indicated in the contract.

107.19 Personal Liability of Public Officials.

In carrying out any of the provisions of these specifications, or in exercising any power or authority granted to them by or within the scope of the contract, there shall be no liability upon the Director, Engineer, or their authorized representatives, either personally or as officials of the State, it being understood that in all such matters they act solely as agents and representatives of the State.

107.20 No Waiver of Legal Rights.

Upon completion of the work, the Department will expeditiously make final inspection and notify the Contractor of acceptance. Such final acceptance and processing of the final estimate, however, shall not preclude or stop the Department from correcting any measurement, estimate, or certificate made before or after completion of the work, nor shall the Department be precluded or estopped from recovering from the Contractor or his surety, or both, such overpayments as it may sustain, or by failure on the part of the Contractor to fulfill his obligations under the contract. A waiver on the part of the Department of any breach of any part of the contract shall not be held to be a waiver of any other or subsequent breach.

The Contractor, without prejudice to the terms of the contract, shall be liable to the Department for latent defects, fraud, or such gross mistakes as may amount to fraud, or as regards the Department's rights under any warranty or guaranty.

107.21 Stormwater Management.

(a) Protection of Project Site and Adjacent Property.

The Contractor shall perform the work while protecting the project site and adjacent property from contaminated and turbid stormwater runoff. The requirements in Section 665 shall apply to all work regardless of whether or not any of the pay items of Section 665 are included in the contract. When a pay item is not in the contract for an item of temporary erosion control, and the work is deemed necessary by the Engineer to restore or maintain compliance with the ADEM NPDES General Permit or the contract, the work will be paid for as Extra Work. The Contractor shall minimize the introduction of and remove sediment, nutrients, and other pollutants in stormwater runoff originating within the ALDOT right of way. The quality of water originating off of the right of way and entering the project site shall not be diminished as it flows through the site.

(b) Best Management Practices.

The Contractor shall implement and maintain appropriate structural and nonstructural Best Management Practices (BMPs) for the prevention and control of nonpoint sources of pollutants, e.g., sediment, oil and grease, chemicals, etc., during project construction. The Contractor shall abide by the regulations of the Alabama Department of Environmental Management (ADEM) applicable to construction stormwater and the National Pollutant Discharge Elimination System (NPDES) General Permit.

(c) NPDES Permit Coverage for Construction Stormwater Discharge.

A Project Note will be shown on the plans indicating the status of NPDES permit coverage for construction stormwater discharge and the availability of a preliminary ALDOT Construction Best Management Practices Plan (CBMPP) for the project. When NPDES permit coverage is required and retained by ALDOT, the Alabama Department of Transportation is considered to be the Permittee and the Engineer is considered to be the Responsible Official. When NPDES permit coverage is required and retained by the Local Public Agency (LPA), the LPA is considered to be the Permittee and the LPA will designate their Responsible Official. The Permittee is responsible for all required NPDES Permit maintenance, renewal, modification, and termination.

The Contractor shall be responsible for obtaining applicable NPDES permit coverage through ADEM for all material pits, waste areas, plant sites, haul roads and other off-site areas selected by the Contractor to construct the project. Copies of the written acknowledgement from ADEM verifying that permit coverage has been obtained shall be forwarded to the Engineer with or as part of the Contractor's Stormwater Management Plan (SWMP) before ground is disturbed in these areas.

(d) Weather Preparedness and Recovery.

The Contractor shall prepare a project specific weather preparedness and recovery plan as part of the Contractor's SWMP. At a minimum, the plan shall include details to implement the following four components to the maximum extent practicable:

1. Unexpected Weather Preparations.
   a. Cover unstabilized ditches with polyethylene, or other material, securely anchored to prevent erosion of the channel. Where feasible, the required permanent stabilization should be installed instead of temporary measures.
      - Cover unstabilized slopes with Temporary Mulching, polyethylene, or other material, securely anchored to prevent erosion of the slope. Where feasible, the required permanent stabilization should be installed instead of temporary measures.
2. Forecasted Weather Preparations.
   a. Plan work to minimize additional soil disturbance in the days preceding an event.
   b. Ensure all BMPs are properly installed and maintained to prevent erosion, capture sediment, and reduce turbidity.
   c. Cover unstabilized ditches with polyethylene, or other material, securely anchored to prevent erosion of the channel. Where feasible, the required permanent stabilization should be installed instead of temporary measures.
   d. Cover unstabilized slopes with Temporary Mulching, polyethylene, or other material, securely anchored to prevent erosion of the slope. Where feasible, the required permanent stabilization should be installed instead of temporary measures.
3. Severe Weather Preparations.
   a. Dewater basins and close basin outlet pipe valves to maximize the capture and treatment of turbid stormwater.
   b. Install temporary diversions to route stormwater away from critical areas.
   c. Remove sediment from existing BMPs to maximize the capture of new sediment.
   d. Review and improve or upgrade BMPs which have performed poorly during previous precipitation events.
   e. Plan work to minimize additional soil disturbance in the days preceding an event.
   f. Ensure all BMPs are properly installed and maintained to prevent erosion, capture sediment, and reduce turbidity.
   g. Cover unstabilized ditches with polyethylene, or other material, securely anchored to prevent erosion of the channel. Where feasible, the required permanent stabilization should be installed instead of temporary measures.

   h. Cover unstabilized slopes with Temporary Mulching, polyethylene, or other material, securely anchored to prevent erosion of the slope. Where feasible, the required permanent stabilization should be installed instead of temporary measures.
4. Weather Recovery.
   a. Immediately repair any breach in basin dams.
   b. Remedy hazardous conditions.
   c. Conduct a Site Inspection of the entire project site in accordance with Item 107.21(e)2.
   d. Create a schedule of needed Corrective Actions in accordance with Item 107.21(e)4., which will be included in the Noncompliance Notification Report submitted to ADEM; set repair priorities starting at the discharge point in each drainage area when possible and evaluate environmental impacts, offsite impacts, timeliness of accessibility for repairs, and public perception.

(e) Inspections and Corrective Actions

1. Daily Observations.

   The Contractor's Qualified Credentialed Inspector (QCI) and the Department's Project QCI shall perform daily observations of discharge points and areas of the project where the ground is disturbed and record rainfall measurements and weather information. If any previously undocumented BMP deficiencies or other regulatory violations are observed, the Project QCI will notify the Department's Project Qualified Credentialed Professional (QCP), the Contractor QCI shall notify the Contractor QCP and/or Superintendent, and a formal Site Inspection will be performed.
2. Site Inspections.

   When the project is covered by the NPDES General Permit, formal inspections shall be made by the Contractor QCI and the Project QCI together, under the supervision of the Contractor QCP and/or Superintendent and the Project QCP, respectively. Project site inspections of the construction best management practices shall be made by the QCIs per the requirements of the NPDES permit and no less frequently than once per week and after the accumulation of 3/4 inch {75 mm} of rainfall within 24 hours. The project site inspections shall be initiated as soon as possible and within 24 hours of resuming work on the project and shall be completed no later than 5 days after a qualifying rain event. Inspection Certification Reports and Noncompliance Notification Reports (if warranted) will be entered into the Department's Stormwater Tracking System (SWTS) by the Project QCI. Required verbal notifications of noncompliance to ADEM are the responsibility of the Permittee.

   Construction stormwater sampling and turbidity monitoring shall be performed by the Permittee when directed by the Project QCP or as required by the NPDES General Permit. The Contractor QCI and the Project QCI shall both be present during stormwater sampling. Stormwater Turbidity Sampling Reports (if required) will be entered into the Department's SWTS by the Project QCI.

   If the NPDES permit is held by the LPA, the reports shall be written using ADEM's Form 23 11/11 or Form 25 11/11 (if applicable) by the LPA QCI. Formal inspections shall be reported to ADEM by the Permittee in accordance with NPDES permit requirements. Copies of all draft reports shall be provided to the Engineer no later than 24 hours after the inspection. Copies of signed reports shall be submitted to the Engineer no later than 5 days after the inspection.
3. QCP Site Evaluations.

   The Permittee's Qualified Credentialed Professional (QCP) shall personally perform site evaluations in accordance with the NPDES General Permit at least once per every three months for Priority Construction Sites and once per every six months for Non-priority Construction Sites. These evaluations shall consist of an onsite inspection of all erosion, sediment, and turbidity control best management practices being implemented to determine adequacy and consistency with site conditions and shall include a review of the CBMPP to ensure proper maintenance. The resulting inspection reports shall be submitted to ADEM by the Permittee's QCP. For ALDOT held NPDES permits, the resulting inspection reports will be entered into the Department's SWTS by the Project QCP.
4. Corrective Actions.

   If an inspection report reveals anything outside of regulatory compliance, the NPDES General Permit requires immediate corrective action shall be taken by the Contractor and completed prior

to the next storm event but no later than 5 days after the inspection unless prevented by unsafe weather conditions. Additional inspections shall be performed until the observed deficiency is corrected and in compliance with the NPDES General Permit. Should discharges from construction activity cause or contribute to instream turbidity exceeding background turbidity by more than 50 nephelometric turbidity units (NTUs), or cause substantial visible contrast with background turbidity, the Contractor shall suspend construction activity in the drainage area discharging to the affected Stormwater Discharge Point until effective corrective actions are implemented and instream turbidity decreased to acceptable levels. The suspension of construction activities includes all operations that are not directed toward correction of erosion, sediment, and turbidity control best management practices, permanent stabilization, or returning the project to regulatory compliance. ALDOT has the right to require the suspension of similar construction activities throughout the project should conditions and actions by the Contractor be deemed unacceptable by the Engineer.

Any damage to properties adjacent to the project site due to the Contractor's acts, omissions, misconduct, intentional or negligent conduct regarding stormwater management shall be restored in accordance with the requirements of Article 107.12. Any regulatory fines, costs, damages, or expenses incurred by ALDOT due to the Contractor's acts, omissions, misconduct, intentional or negligent conduct shall be reimbursed to ALDOT or otherwise compensated by the Contractor. Any regulatory fines, costs, damages, or expenses incurred by the Contractor for off-site areas are and shall be the sole and exclusive responsibility of the Contractor.

(f) NPDES Permit Termination.

The Contractor shall be responsible for stormwater runoff control on the project until the NPDES General Permit for coverage of construction stormwater is terminated. Termination of NPDES Permit coverage can only be requested after Acceptance for Maintenance and approval by the Engineer. Termination shall be requested no later than 10 days after Acceptance for Maintenance.

107.22 Environmental Protection and Spill Prevention.

The Contractor shall comply with all Federal, State and local laws and regulations controlling pollution of the environment. The Contractor shall also take all reasonable precautions to prevent pollution of streams, lakes, ponds, reservoirs and other waters of the State with fuels, oils, bitumens, chemicals, or other harmful materials and to prevent pollution of the atmosphere from particulate and gaseous matter.

The Contractor shall comply with all ADEM and local air pollution control programs within the State, and their rules and regulations regarding air pollution matters, especially "open burning", "fugitive dust", and "asphalt batching plant" restrictions. A valid permit for "open burning" or operation of an "asphalt batching plant" will be required from the air pollution control agency within whose jurisdiction the work is to be performed before such operations will be allowed.

Construction and worker debris shall not be exposed to precipitation or stormwater. All construction and worker debris (trash, garbage, discarded construction materials, etc.) shall be immediately removed and disposed of in an approved manner.

The Contractor shall minimize the discharge of pollutants from equipment and vehicle washing, wheel wash water, concrete washout, and other wash waters. Prior to discharge, all wash waters and dewatering discharges shall be captured and treated. Concrete and other material washout pits shall be lined with geotextile filter fabric and have a perimeter barrier to prevent material transport by stormwater.

When the Contractor's operations encounter or expose any abnormal, or potentially abnormal, condition which may indicate the presence of a hazardous and/or toxic waste, such operations shall be discontinued in the vicinity of the abnormal condition and the Engineer shall be notified immediately. The presence of barrels, discolored earth, metal, wood, visible fumes, abnormal odors, excessively hot earth, smoke or anything else which appears abnormal may be indicators of hazardous and/or toxic wastes and shall be treated with extraordinary caution.

The Contractor shall not resume operations in the vicinity of the abnormal condition until so directed by the Engineer. Disposition of the hazardous and/or toxic waste shall be made in accordance with the requirements and regulations of the Alabama Department of Environmental Management, these specifications, and as directed by the Engineer.

Where the Contractor performs work necessary to dispose of hazardous and/or toxic waste, payment will be made at the unit prices for pay items included in the contract which are applicable to such work.

When the contract does not include such pay items, payment will be made as provided in Article 109.04 for extra work.

The Contractor shall submit to the Engineer and implement a Spill Prevention Control and Counter Measures (SPCC) Plan for all fuel or chemical storage tanks or facilities located on ALDOT right of way. The SPCC shall be submitted in accordance with the regulations given in the ADEM Administrative Code and the NPDES General Permit. The Contractor shall maintain on-site, or have readily available, sufficient oil and grease absorbing material and flotation booms to contain and clean up fuel or chemical spills and leaks. Soil contaminated by paint or chemical spills, oil spills, etc., shall be immediately cleaned up or be removed and disposed of in an approved manner.

107.23 Temporary Construction Encroachment into Streams, Water Bodies and Wetlands.

Temporary encroachment into streams, water bodies and wetlands may be shown as a part of the contract requirements if the encroachment is necessary for the completion of the work. A Contractor shall submit a request for all other temporary encroachments into streams, water bodies and wetlands if the encroachment is not prohibited by requirements given in the contract. Requests shall be submitted for proposed temporary stream crossings, temporary water diversions, and temporary work bridges and platforms.

A request for a temporary encroachment shall be submitted as an attachment to the Contractor's Stormwater Management Plan and forwarded to the State Construction Engineer for review and acceptance. The submittal of the request shall contain the following:

1. A description of how water quality will be protected during the encroachment.
2. A drawing of the proposed encroachment including a dimensioned plan view and elevation view depicting the location and distances from the water body, existing ground elevation, and proposed and existing structures.
3. The drawing shall also include details and dimensions of the pipes, bridges, or other facilities allowing the passage of water. It shall be the responsibility of the Contractor to ensure the opening under or through the drainage facilities is adequately sized to allow for normal seasonal flows.
4. A description of the sequence of placement and eventual removal of any temporary fill.
5. The type and estimated volume in cubic yards {cubic meters} and tons {metric tons} of any fill material proposed to be placed.
6. Provisions required to prevent fill from being eroded and measures for recovering and removing any fill material that is eroded.

US Army Corps of Engineers or other regulatory approval and notice may be required for the encroachment into streams, water bodies and wetlands. Corps of Engineers approval that is not given to the ALDOT or to the County holding the Nationwide Permit for the project will not be accepted as being adequate regulatory authorization for the encroachment.

All encroachments into streams, water bodies and wetlands shall be done in accordance with the requirements of regulatory permitting, approvals and conditions. Encroachments shall be done in a manner that will minimize the adverse effect on the quality of the water. Maintenance shall be performed as necessary to ensure water passage and to ensure that neither fill nor water is contaminated by equipment fluids or by loose materials falling from equipment.

The methods and materials proposed for temporary encroachments into streams, water bodies and wetlands and the protection of water quality during an encroachment shall be done by the Contractor with no direct payment unless shown otherwise on the plans.

107.24 Permits for Pesticide Application.

All pesticide (including herbicide) applications shall be done under the on-site, direct supervision of a person possessing a Commercial Pesticide Application Permit and a Professional Services Permit (turf and ornamentals category) or a Commercial Applicator Permit and a Custom Applicator Permit (right-of-way pest control category) issued through the Alabama Department of Agriculture and Industries. Proof of the possession of these permits shall be furnished to the Engineer prior to the commencement of work. Any work performed without the onsite, direct supervision of these permitted individuals will be subject to rejection by the Engineer.

SECTION 108
PROSECUTION AND PROGRESS

108.01 Subletting and Assignment.

(a) Subletting.

1. Limitations of the Extent of Subletting.

The Contractor shall not sublet the contract or any portion thereof, or of his right, title, or interest therein, without written consent of the Engineer. If such consent is given, the Contractor will be permitted to sublet a portion of the work, but shall perform with his own organization, work amounting to not less than 30 percent of the total contract cost. A Contractor that does not perform at least 30 percent of the work with his own organization may be disqualified from further bidding and may not be approved for work in any role or capacity on an ALDOT project.

Upon default of the Contractor, the surety will be permitted to have all the work performed under sublet approval.

Work performed without sublet approval will be designated as unauthorized work as noted in Article 105.11.

Any items designated in the contract as "specialty items" may be performed by subcontract and the cost of such specialty items performed by subcontract may be deducted from the total cost before computing the amount of work required to be performed by the contractor with his own organization. No subcontracts, or transfer of contract, shall relieve the Contractor of his liability under the contract and bonds.

The Department reserves the right to disapprove a request for permission to sublet when the proposed Subcontractor has been disqualified from bidding for those reasons listed in Subarticle 102.02(b).

2. Subcontractor's Status.

A Subcontractor shall be recognized only in the capacity of an employee or agent of the Contractor and his removal may be required by the Engineer, as in the case of an employee.

(b) Assignment.

The performance of the contract may not be assigned, except upon the written consent of the Director. Consent will not be given to any proposed assignment which would relieve the original Contractor or his surety of their responsibilities under the contract nor will the Director consent to any assignment of a part of the work under the contract.

The Contractor may assign moneys due or to become due him under the contract, if such assignment is approved by the Director, to the extent permitted by law, but any assignment of moneys shall be subject to all proper set-offs in favor of the Department and to allow deductions provided for in the contract and particularly all money withheld, whether assigned or not, shall be subject to being used by the Department for the completion of the work in the event that the Contractor should be in default therein.

An assignment by operations of law or assignment for the benefit of creditors, or the bankruptcy of the Contractor, shall not vest any right in this contract in the Trustee in bankruptcy, the Contractor's creditors, or the agent of the creditors.

In no case will the Department make the warrant payable to anyone other than a party to the contract and; therefore, if the contractor assigns the proceeds of his contract to a bank or other individual or company, approval of the assignment by the Director only constitutes an agreement to make the warrants payable to the contractor and for it to be mailed to the address of the party to which the contract is assigned.

108.02 Notice to Proceed.

(a) General.

A notice to proceed shall be issued by the Engineer within 15 calendar days after final execution of the contract by the Director and approval by the Governor, unless both parties agree in writing to a stipulated extension in time for the issuance of a notice to proceed. Unless the Contractor is otherwise notified in writing, it shall be understood that the mailing or the delivery to the Contractor or his authorized agent, of a copy of the executed and approved contract and bonds or the emailing or mailing of written notice by the Engineer or receipt of facsimile notice from the Engineer that the contract has been approved by the Governor, shall constitute the notice to proceed. If the Contractor is notified in

writing that none of the above shall constitute notice to proceed, he shall not commence work until receipt of a written notice to proceed signed by the Engineer.

(b) Time of Beginning Work.

Unless otherwise directed in writing by the Engineer, the Contractor will be expected to begin work within 15 calendar days after issuance of notice to proceed.

108.03 Progress Schedule of Operations.

(a) Bar Graph Schedule

On all projects which have a contract time in excess of 90 working days or 180 calendar days, the Contractor shall submit a satisfactory, comprehensive bar graph schedule of operations to the Area Construction Engineer prior to the Preconstruction Conference. This schedule shall be on Form C10 furnished by the Department at the time of contract award. Said schedule of operation shall provide a bar for each major phase of construction such as, but not limited to, clearing and grubbing, grading, drainage structures, bridges, base, shoulders, paving, etc. with an estimated start and completion date for each bar and an overall project completion date, all within the specified contract time. In lieu of the Form C-10, the Contractor will be allowed to submit their Critical Path Method schedule of operations as a pdf file if the above information is included. The Engineer may order the submittal of a bar graph schedule of operation on any project which has a contract time less than that specified above should he deem such necessary for project control.

A revised bar graph schedule and completion update may be required within ten days of the occurrence of any one of the following conditions: (1) at each major change from the original submitted, (2) when a time extension is granted, and (3) when a revised bar graph schedule is requested by the Engineer.

The Engineer's approval of the aforementioned Schedule of Operations does not waive any contract requirements.

(b) Critical Path Method Schedule

On all projects which have a contract time in excess of 240 working days or 480 calendar days, the Contractor shall submit to the Area Construction Engineer or Local Transportation Engineer, for acceptance, a Critical Path Method (CPM) Schedule for the project within 30 calendar days after Notice to Proceed or at the preconstruction conference, whichever is earlier. This CPM Schedule will be used in lieu of the bar graph schedule of operation in evaluating work progress.

The CPM Schedule shall include detailed schedule diagrams and schedule data as described below for the entire Contract Time (this term is defined in Article 101.01). The CPM Schedule shall be consistent with the Sequence of Construction, or approved revisions, showing discrete activities for each pay item or group of pay items to be accomplished within each phase, and shall include activities for submittals, deliverables, and reviews in the schedule. Sufficient liaison shall be conducted and information provided to indicate coordination with utility owners having facilities within the project limits. The schedule must reflect the utility adjustment schedules as shown in the contract, unless changed by mutual agreement of the utility company, the Contractor, and the Department. Failure to include any element of work or any activity relating to utility work will not relieve the Contractor from completing all work within the contract time at no additional time or cost to the Department, notwithstanding the acceptance of the schedule by the Department.

The CPM Schedule may indicate a completion date in advance of the expiration of contract time. However, the Department will not be liable in any way for the Contractor's failure to complete the project prior to expiration of contract time. Any additional costs, including extended overhead incurred between the Contractor's scheduled completion date and the expiration of contract time, shall be the responsibility of the Contractor. The Contractor shall not be entitled to claim or recover any such costs from the Department.

Acceptance of the CPM Schedule by the Department shall in no way constitute approval or acceptance of any items that are contrary to the plans or other contract documents.

The Engineer may withhold monthly payments due to the failure of the Contractor to submit an acceptable schedule or monthly updates within the time frame described herein.

The following reports shall be submitted:

1. Schedule Submissions.

a. Baseline Schedules

Each baseline schedule submission shall include the following reports:

i.	Gantt Chart (Full Project Schedule and Critical Path Schedule)
ii.	Activity Report
iii.	Schedule Narrative
iv.	Software Settings Report
v.	Electronic Software Data File
vi.	Project Calendars

i. Gantt Chart – A Critical Path Method (CPM) Schedule in Gantt Chart view, grouped (banded) by phase as shown in the sequence of construction and sorted by early start days. The critical path activities, defined as the longest continuous path of work activities, shall be prominently identified. The Gantt Chart shall be submitted printed in color on 11-inch x 17-inch paper and as a PDF file. The schedule shall contain, at a minimum, the following information for each schedule activity:

- Identification
- Detailed activity description
- Original duration
- Early start date
- Early finish date
- Late start date
- Late finish date
- Total float or slack

ii. Activity Report – An Activity Report with the following schedule activity information for each construction activity:

- Identification
- Description
- Original duration
- Early start date
- Early finish date
- Late start date
- Late finish date
- Total float or slack
- Percent complete
- Lag
- Predecessors
- Successors
- Associated calendar

This report will be submitted on 11 inches by 17 inches paper. The report should be broken down by the phasing shown in the Sequence of Construction in the plans and sorted to match the format of the full project schedule. The Gantt Chart diagram shall not be included in this report.

iii. Schedule Narrative – A schedule narrative report describing current project schedule status and identifying potential delays. It should contain the following:

- Description of the current critical path of the project. Identify specific activities, progress, or events that may reasonably be anticipated to impact the critical path.
- Identification of any and all activities, either in progress or scheduled to occur within the following 30 days that require Department participation, review, approval, etc.
- A milestone report summarizing all project milestones and their current status.

- Submittal/Procurement section that discusses the status of the submittals to be submitted/reviewed and lead times for materials to be fabricated for the project.
- Explanation of the calendars used in the schedule.

iv. Software Settings Report – The schedule log file showing that the Contractor properly used all settings referenced in 108.03(b) during implementation of the project schedule.

v. Electronic Software Data File – The raw data file from the software used to create the CPM Schedule.

vi. Project Calendars – Provide all calendars utilized in the CPM Schedule. Holidays, non-workdays, contractor vacation, allowances for weather, etc. shall be shown on the calendars. For example, paving calendar, cure calendar, workday calendar with weather included, etc.

The Engineer will have 14 calendar days to review and accept the baseline schedule, provide a written response or to schedule a meeting with the Contractor to resolve any problems that prevent acceptance of the baseline schedule. The Contractor shall attend the meeting with the Engineer and submit a corrected Schedule to the Engineer within seven calendar days after the meeting. The process will continue until a baseline schedule is accepted by the Engineer. The Area Construction Engineer or the Local Transportation Engineer will review/accept the baseline schedule submissions.

2. Monthly Update Schedules

Upon the Engineer's acceptance of the baseline CPM Schedule, the Contractor shall submit monthly updated files and reports reflecting progress within three (3) calendar days after the monthly estimate cut-off date or on a date mutually agreed to with the Contractor and Project Manager. The Contractor must include 'Actual' completion dates for activities completed in each monthly update. The Data Date of each updated schedule shall correspond with the monthly estimate cutoff date. Each monthly update submission shall include the following reports:

i.	Gantt Chart (Full Project Schedule, Critical Path Schedule, and 6-week look ahead)
ii.	Activity Report
iii.	Schedule Narrative
iv.	Software Settings Report
v.	Electronic Software Data File
vi.	Project Calendars

i. Gantt Chart – See Baseline Schedule requirements above.

ii. Activity Report – See Activity Report requirements above.

iii. Schedule Narrative – A schedule narrative report describing current project schedule status and identifying potential delays. This report shall at a minimum include the following information:

- A description of the progress made since the previous schedule submission, if applicable, and objectives for the upcoming 30 calendar days. It will be submitted on 8.5-inch x 11-inch paper.
- Indication if the project is on schedule, ahead of schedule, or behind schedule. If the project is ahead of schedule or behind schedule, the report shall include the specific number of calendar days. If the project is behind schedule, the report shall include a detailed recovery plan that will put the project back on schedule.
- Description of if the current critical path of the project and indicate if this has changed within the last 30 calendar days, discuss current successes or problems that have affected either the critical path's length or have caused a shift in the critical path within the last 30 calendar days, and identify specific activities, progress, or events that may reasonably be anticipated to impact the critical path within the next 30 calendar days, either to affect its length or to shift it to an alternate path.

- List of schedule logic or original duration changes that have been made to the schedule since the previous submission. For each change, describe the basis for the change and specifically identify the activities affected by identification number. The Department reserves the right to reject any modifications to the baseline schedule.
- Identify any and all activities, either in progress or scheduled to occur within the following 30 calendar days that require Department participation, review, approval, etc.
- A milestone report summarizing all project milestones and their current status.
- Submittal/Procurement section that discusses the status of the submittals to be submitted/reviewed and materials to be fabricated for the project.
- Explanation of the calendars used in the schedule.

iv. Schedule Log Report – The Contractor shall attend monthly meetings scheduled by the Engineer to discuss Contract progress, near term scheduled activities, including utility relocations, upcoming traffic shifts or changes, Roadway Closures, Lane Closures, anticipated problems, and proposed solutions. The Contractor shall submit a six-week "Look Ahead" planning schedule at each monthly meeting, showing the items of work completed the previous two weeks and the activities planned for the next six weeks. If requested, representatives from each subcontractor shown as being active in the Look Ahead schedule shall also attend the meeting. The schedule will be developed in Gantt Chart format, identifying current and planned activities and related CPM Schedule work activities, including subcontractor work and submittals. Designate all activities that are critical path activities as determined by the currently accepted CPM Schedule.
The Engineer will have 14 calendar days to review and accept the CPM Schedule from the date of the monthly schedule meeting or provide comments to the Contractor to resolve any problems that prevent acceptance of the monthly update. In the event the monthly update is not acceptable, the Engineer may require the Contractor to revise and resubmit the current month's progress update schedule or the Engineer may reject the current progress update and allow the Contractor to make the modification on the next monthly progress update, depending on the nature of the change required. The Project Manager will review/accept the monthly schedule updates.

3. Schedule Content.

All schedule submissions shall comply with the following content guidelines as appropriate to the specific submission:

a. Outline Schedule Diagrams and Data shall show the sequence, order, and interdependence of major construction milestones and activities. Include ordering and procurement of critical materials and equipment, long-lead time items, and key milestones identified by the Contract. Identify planned work schedule(s) and include all non-workdays.
b. Provide a description of each major construction activity and key start and finish milestones.
c. Detailed Schedule Diagrams shall include activity number, description, start and finish dates, float or slack, and all relationships (i.e. logic ties). Show the sequence, order, and interdependence of activities in which the work is to be accomplished. Include allowance for Department oversight, acceptance and return of submittals, samples, shop drawings and working drawings where Department acceptance is specifically required (in accordance with Article 105.02 of the standard specifications). In addition to construction activities, detailed network activities shall include the submittals, procurement, and Department or Utility activities impacting progress:
   - Submittal activities shall include oversight and acceptance of submittals. If the Department's action on any submittal is "Not Accepted" or "Revise and Resubmit", a new series of submittal preparation activities shall be inserted into the schedule. Predecessor for the new submittal preparation activity will be the original acceptance activity and the successor of the new acceptance activity will be the fabrication/delivery activity for the equipment or material.

   - Procurement activities shall include all critical materials and equipment, fabrication of special material and equipment, and their installation and testing.
   - Show activities of the Department or Utilities that affect progress and contract-required dates for completion of all or parts of the work.
   - All activities shall be assigned to a specific calendar within the software. Specific calendars will be defined within the software to include planned work days. These calendars will include both Contractor and Contract defined holidays and suspension days as non-workdays. At a minimum, major milestones shall include the following:
     - Start of construction
     - Finish of construction
     - Roadway or ramp closures
     - Roadway or ramp openings
     - Traffic shifts
     - Critical material deliveries
     - Bridge Foundations (per Bridge)
     - Bridge Substructure (per Bridge)
     - Bridge Superstructure (per Bridge)
     - Completion of activities for incentive payment (if applicable)
     - Interim Dates for incentive payment (if applicable)
     - Beginning and End of each Phase
     - Or any milestone requested by the Engineer

e. All non-procurement activities must be less than or equal to 20 workdays and include no more than one contractor or sub-contractor unless approved by the Engineer to be greater.
f. Only two open-ended activities (the first and the last) are allowed.
g. Constraints shall only be used for "Project Start," and "Project Completion." Constraints cannot override logic. The use of any other imposed constraints is not allowed without specific approval by the Engineer. Any other desired constraints must be submitted to the Engineer with the rationale for the use of each desired additional constraint. If allowed by the Engineer, the rationale should be recorded in the activity's notebook field. Mandatory constraints (start and finish) violate network logic and shall not be used.
h. Progressed activities that have posted progress without predecessor completion are not allowed without prior approval by the Engineer.
i. Out of sequence progress, if applicable, shall be handled through Retained Logic. Use of the Progress Override option is not appropriate for this project and will not be allowed.
j. Progress shall be calculated based on percent complete.
k. All changes to activities shall be noted in the schedule narrative. The notebook shall include, as a minimum, the date and reason for the change, as well as reference to a document wherein the Engineer acknowledges and accepts the change.
l. The use of automatic resource leveling is prohibited.

3. Float or Slack.

Float is defined as the amount of time the finish of an activity can be delayed. Two kinds of float are possible: Total float is how much an activity can be delayed without affecting the finish date of the project or an intermediate deadline (constraint); it is the difference between the late finish date and the early finish date. Free float is how much an activity can be delayed without affecting its earliest successor. Float is not for the exclusive use or benefit of either the Department or the Contractor.

The use of float suppression techniques, such as preferential sequencing (arranging critical path through activities more susceptible to Department caused delay), special lead/lag logic restraints, zero total or free float constraints, extended activity times, imposing constraint dates other than as required by the contract, or the use of illogical relationships to consume non-critical path float shall be cause for rejection of the CPM Schedule or its updates. The use of automatic Resource Leveling (or similar software features) used for the purpose of artificially adjusting activity durations to consume float and influence the critical path is expressly prohibited.

Negative float shall not be a basis for requesting time extensions. Scheduled completion date(s) that extend beyond the contract completion date (evidenced by negative float) may be used by the Department in computations for assessment of payment withholdings. The use of this computation is not to be construed as a means of acceleration.

4. Time Extensions.

The Contractor may request a time extension in accordance with Article 108.09. An extension of time for performance shall be considered only to the extent that a delay to an activity or activities exceeds the total float along the project critical paths within the current approved schedule.

As a minimum, time extension requests shall contain:

a. A descriptive summary of the changes
b. An analysis of project impact
c. A fragnet that shows the impacted activities before the change
d. A fragnet that shows the impacted activities after the change

Time impact analyses that do not include the documentation listed above will not be reviewed or considered for approval. If a time extension is approved by the Engineer, the specific activities and the overall CPM Schedule must be updated.

5. Performance of Work.

By submitting a CPM Schedule, the Contractor is making a positive assertion that the project will be constructed in the order indicated on the Schedule, and the Contractor shall pursue the work in accordance with the latest accepted CPM Schedule. Any costs associated with meeting milestones and completing the project within the authorized contract time will be borne solely by the Contractor.

6. As-Built Schedule.

The Contractor must include 'Actual' completion dates for activities completed in each monthly update.

7. Measurement and Payment.

Use of Critical Path Method, software, submittals, and incidentals will not be measured separately for payment, but will be a subsidiary obligation of Mobilization. Scheduled mobilization payments may be reduced or withheld until the initial CPM Schedule or monthly updates are reviewed and accepted by the Engineer. The amount of reduction or amount to be withheld will be equal to 10% of the total lump sum value for Mobilization.

108.04 Prosecution of Work.

(a) Preconstruction Conference.

The Contractor and Subcontractors shall attend a preconstruction conference scheduled by the Engineer and shall describe how the work will be prosecuted.

The preconstruction conference will be held after the award of the contract and prior to the commencement of any work.

(b) Soil Erosion and Stormwater Management.

1. Compliance and Progress.

If the Contractor fails to comply with the requirements of the National Pollutant Discharge Elimination System (NPDES) General Permit, the Erosion and Sediment Control Plan (ESCP), the Construction Best Management Practices Plan (CBMPP), the accepted Stormwater Management Plan (SWMP), other contract documents, or the directions of the Engineer, the Engineer may order the Contractor to discontinue all operations except work in managing erosion, sediment transport, turbidity, and construction stormwater discharge until the requirements are met. Temporary cessation of operations for environmental compliance does not and shall not constitute a delay or qualify for consideration of an extension of contract time. Failure of ALDOT to observe the work of the Contractor does not relieve the Contractor of its contractual responsibility for the prevention of soil erosion and the control of sediment. The Permittee's QCP is responsible for mitigation of damage to public or private property.

The Contractor shall not commence any activities within a drainage area that disturb the soil or expose it to erosive forces until fully prepared to continuously pursue work until permanent soil stabilization is achieved. The installation of temporary soil erosion and sediment control Best Management Practices (BMPs) shall be performed in coordination with the installation of the permanent erosion control features to ensure effective continuous erosion control throughout the

life of the project. The Contractor will be required to construct, install and maintain all permanent erosion control features as grading advances.

2. Manufacturer Recommendations for Manufactured Products and Devices.

The Contractor shall furnish the manufacturer's recommendations for material selection, installation and maintenance of any manufactured BMP or manufactured component of a BMP to the Engineer prior to installation.

3. Contractor's Stormwater Management Plan.

The Contractor shall prepare a Stormwater Management Plan (SWMP) for all projects. The SWMP is required regardless of the type of work, funding or regulatory permitting. The SWMP is required regardless of whether an "Erosion and Sediment Control Plan" is shown in the plans. The most recent version of ALDOT's electronic SWMP template shall be used to create the Contractor's SWMP. The Contractor and the erosion and sediment control Subcontractor, if applicable, shall sign and certify the SWMP. Submitted SWMPs will not be considered complete if the provided template has been modified. Three copies of the SWMP shall be submitted to the Area Construction Engineer at least 7 days prior to the preconstruction conference.

The SWMP shall provide sequences and details of all erosion and sediment control work, clearing and grubbing operations, grading operations and operations establishing permanent erosion control features. The SWMP shall include operational details and identification of personnel and equipment that will be dedicated to implementing the plan at all phases of the work. The SWMP shall include a project specific weather preparedness and recovery plan based on the requirements of Subarticle 107.21(d). Work shall not begin until the SWMP has been accepted as complete by the Engineer.

Written acknowledgement of NPDES permit coverage from ADEM and other required clearances and acknowledgements required by Subarticle 106.01(b) for any offsite waste areas or pits shall be submitted with or included in the SWMP. The details for proposed temporary encroachments into streams, water bodies and wetlands required by Article 107.23 shall be submitted with or included in the SWMP. Requests to store fuel tanks or other chemicals on ALDOT right of way and applicable spill prevention plans required by Article 107.22 shall also be submitted with or included in the SWMP.

4. Fuel Tanks.

Any requests to store a fuel tank on the project right of way shall be accompanied by a Spill Prevention Control and Countermeasures (SPCC) Plan and both shall be submitted with or included in the SWMP as required in Article 107.22. The use of onsite fuel storage tanks will not be allowed if this is shown to be prohibited on the plans.

5. Erosion and Sediment Control Plan.

When an "Erosion and Sediment Control Plan" (ESCP) is included in the plans, it is considered to be a part of the ALDOT CBMPP. The Contractor shall comply with the requirements of the design details as shown therein. The Contractor may submit requested modifications to the ESCP as part of the SWMP for acceptance or rejection by the Engineer. The ESCP may also be modified by the Engineer as field conditions warrant. The Contractor shall install BMPs in an effective manner and at all locations directed or permitted by the Engineer, regardless of the BMP quantities and locations depicted on the ESCP. All modifications made to the ESCP will be documented in the CBMPP by the Permittee's QCI and certified by the Permittee's QCP.

6. Qualified Credentialed Professionals.

The Department may assign a full-time Qualified Credentialed Professional (Project QCP) to the project. Otherwise, another ALDOT QCP, typically the Area Stormwater Coordinator, will perform most of the Project QCP duties. The Project QCP will report to the Project Manager and will be guided by the Area Stormwater Coordinator. The Project QCP will oversee Contractor compliance with the NPDES General Permit, any applicable U.S. Army Corps of Engineers Permit and/or U.S. Fish and Wildlife Service Clearances, the CBMPP, the Erosion and Sediment Control Plan, and the Contractor's SWMP. To accomplish this, the Project QCP duties include:

a. Reviewing and approving the Contractor's SWMP.
b. Signing as the Operational QCP of the ALDOT CBMPP and maintaining and updating the ALDOT CBMPP Operational Component.
c. Possessing knowledge of the location and condition of all discharge points within the project limits.

d. Communicating to the Project Manager and the Area Stormwater Coordinator any issues of regulatory noncompliance or any potential violations in the area of environmental protection and construction stormwater.
e. Supervising and directing the Project QCIs.
f. Providing oversight of the Erosion and Sediment Control Crew (if applicable) and the installation, maintenance, repair, correction and removal of BMPs.
g. Providing oversight of the Contractor's forces during clearing, grading, and construction of stormwater conveyances in order to minimize the potential for negative environmental impact.
h. Communicating with the Project Manager and Contractor QCP (or superintendent) a minimum of once per month and attending project meetings.
i. Reviewing and approving Inspection Certification Reports and coordinating with ALDOT and Contractor personnel to ensure that any stormwater related issues are addressed in a timely manner.
j. Conducting quarterly formal Stormwater Site Evaluations for Priority Construction Sites and semi-annual formal Stormwater Site Evaluations for Non-priority Construction Sites as described in Item 107.21(e)3 and entering the corresponding Inspection Certification Reports into the Stormwater Tracking System.
k. Accompanying personnel from ADEM and other regulatory agencies on all regulatory inspections of the project and communicating the proceedings and outcomes to the Project Manager and the Area Stormwater Coordinator.
l. Representing the Department before regulatory agencies as its Qualified Credentialed Professional and directing any mitigation efforts on behalf of the Department.

7. Qualified Credentialed Inspectors.

a. Contractor's Qualified Credentialed Inspectors

The Contractor shall assign to each project a full-time primary and a backup Qualified Credentialed Inspector (Contractor QCI) certified by ADEM and verified by ALDOT. The Contractor QCI shall be an employee of the Contractor. The name, contact information, and credentials of the Contractor QCIs shall be included in the SWMP and the Engineer shall be notified whenever a substitute Contractor QCI is assigned by the Contractor. There will be no direct compensation for the Contractor QCIs.

The Contractor QCI shall work under the direct supervision of the Contractor QCP and/or superintendent. The Contractor QCI shall be in charge and direction of the Contractor's work regarding the implementation of the CBMPP, the ESCP, and the SWMP, and shall have the authority from the Contractor to mobilize crews to make immediate repairs to BMPs during working and non-working hours. To accomplish this, the Contractor QCI duties include:

- Possessing knowledge of the Contractor's SWMP, the ESCP, the CBMPP, the NPDES General Permit requirements, and if applicable the requirements of the U.S. Army Corps of Engineers Permits and/or U.S. Fish and Wildlife Service Clearances.
- Maintaining QCI certification by attending required refresher training.
- Possessing knowledge of the location and condition of all discharge points within the project limits.
- Communicating to the Contractor QCP and/or superintendent any issues of regulatory noncompliance or any potential violations in the area of environmental protection and construction stormwater.
- Guiding the Erosion and Sediment Control Crew (if applicable) and the Contractor's forces as directed by or in the absence of the Contractor QCP and/or superintendent, during the installation, maintenance, repair, correction and removal of all BMPs in order to minimize the potential for negative environmental impact.
- Reporting to the Contractor QCP and/or superintendent a minimum of once per week and attending project meetings in the absence of the Contractor QCP and/or superintendent.
- Inspecting BMPs on a daily basis to ensure that all controls are in place at all times and ensuring conformance with the contract documents.

- Conducting all required formal stormwater inspections, turbidity monitoring and construction stormwater sampling described in Item 107.21(e)2. with ALDOT personnel.
- Coordinating with Contractor and ALDOT personnel to ensure that any stormwater related issues are addressed in a timely manner.

b. Department's Qualified Credentialed Inspectors

The Department will assign to each project at least one full-time Qualified Credentialed Inspector (Project QCI), certified by ADEM. The Project QCI will work under the direct supervision of the Project QCP and/or Project Manager. The Project QCI will assist the Project QCP and/or Project Manager with overseeing Contractor adherence to the requirements of the NPDES General Permit, the CBMPP, the Erosion and Sediment Control Plan, and the Contractor's SWMP. To accomplish this, the Project QCI duties include:

- Possessing knowledge of the Contractor's SWMP, the ESCP, the CBMPP, the NPDES General Permit requirements, and if applicable the requirements of the U.S. Army Corps of Engineers Permits and/or U.S. Fish and Wildlife Service Clearances.
- Maintaining QCI certification by attending required refresher training.
- Possessing knowledge of the location and condition of all discharge points within the project limits.
- Communicating to the Project QCP and/or Project Manager any issues of regulatory noncompliance or any potential violations in the area of environmental protection and construction stormwater.
- Assisting the Project QCP and/or Project Manager with oversight of the Contractor's forces during clearing, grading, and construction of stormwater conveyances in order to minimize the potential for negative environmental impact.
- Reporting to the Project QCP and/or Project Manager a minimum of once per week and attending project meetings in the absence of the Project QCP and/or Project Manager.
- Inspecting BMPs on a daily basis to ensure that all controls are in place at all times and ensuring conformance with the contract documents.
- Conducting all required formal stormwater inspections, turbidity monitoring and construction stormwater sampling described in Item 107.21(e)2. with the Contractor QCI and entering the corresponding Inspection Certification Reports into the Stormwater Tracking System.
- Coordinating with the Project QCP and/or the Project Manager and Contractor personnel to ensure that any stormwater related issues are addressed in a timely manner.

8. Erosion and Sediment Control Crew.

When required by the plans, the Contractor shall provide a full-time, dedicated Erosion and Sediment Control Crew. The crew shall be under the supervision of the Contractor QCP or superintendent, who shall be assisted by the Contractor QCIs. There will be no direct compensation for the Erosion and Sediment Control Crew.

For all projects, the Contractor shall provide sufficient personnel and appropriate and sufficient equipment and materials on the project at all times to meet the daily erosion and sediment control plan implementation requirements. Additional personnel, equipment, and materials shall be readily available to assist with implementation of the weather preparedness and recovery plan within the timeframe allowed by the NPDES General Permit. Erosion and sediment control materials shall be stored on the project and protected from precipitation, runoff, and sunlight.

9. Stormwater Meeting.

A Stormwater Meeting shall be held after the preconstruction conference and prior to the beginning of work. The meeting shall convene at the project site. ALDOT construction personnel, including the Area Stormwater Coordinator and/or the Project QCP, the Project Manager, the Project QCI, the Contractor QCP (if applicable), the Contractor QCI, the Contractor's superintendent and any subcontractors that will be involved in clearing, earthwork, seeding or erosion and sediment control operations shall attend. The NPDES Permit, if applicable the U.S. Army Corps of Engineers Permit and/or U.S. Fish and Wildlife Service Clearance, ESCP, the CBMPP, the SWMP, clearing limits and sequence of construction shall be among the items discussed. Project discharge points, adjacent property and water bodies should be observed and discussed during the

meeting. Any existing stormwater problems or issues should also be discussed and documented. The Contractor shall notify all subcontractors of the meeting and require their attendance. ALDOT will notify all applicable regulatory agencies.

10. Limit Of Exposure Of Erodible Material.

No more than 17 acres {7.0 ha} of erodible material shall be exposed at any time unless otherwise indicated on the plans by a project note that has been specifically approved by the State Construction Engineer. No increase in the limit of exposure will be considered after letting. If it is noted on the plans that the area of erodible material will be allowed to be greater than 17 acres {7.0 ha}, the Contractor shall include as part of the SWMP project specific details addressing management of the increased acreage during clearing and grubbing, excavation and embankment, vegetation establishment, temporary erosion and sediment control, drainage and construction of stormwater operations. Any approval to increase the area of exposure, including that shown on the plans, may be rescinded if the project is found by the Engineer to be noncompliant with the NPDES General Permit or environmental related contract requirements.

All areas of exposed erodible material will be considered as contributing to the limit of exposure until final required stabilization is installed or applied and erosion is controlled to the maximum extent practicable. The Contractor may submit a request for review and approval by the State Construction Engineer to exclude areas of exposure which are outside of the control of the Contractor and have been temporarily stabilized.

Requests for approval for unnecessary clearing may be considered only if provisions for erosion and sediment control are proposed to be implemented at the Contractor's expense.

(c) Notice of Intention to Start Work.

The Contractor shall provide the Engineer written notice of his intention to start work at least 72 hours in advance of beginning work and at least 24 hours in advance of beginning particular features of construction, such as driving piles, placing concrete, et cetera. Should prosecution of the work be discontinued by the Contractor with the consent of the Engineer, the Contractor shall give the Engineer at least 48 hours notice in writing before resuming operations.

(d) Continuous Prosecution of the Work.

The Contractor shall prosecute the work continuously and diligently in the order and manner set out in his schedule or prescribed by the Engineer. He shall provide sufficient satisfactory materials, labor, and equipment to guarantee the completion of the project in accordance with the plans and specifications within the time specified in the contract.

Should the Contractor fail to maintain a satisfactory rate of progress, the Engineer will require that additional forces and equipment be placed on the work to bring the project up to schedule and maintain it at that level. Failure to maintain the quality and progress of the work shall be cause for the Engineer to withhold all estimates which are or may become due, until satisfactory quality and progress are maintained; or the contract may be defaulted as provided in Article 108.12.

(e) Unsatisfactory Progress.

The Department will monitor the Contractor's progress towards completing the work. The Contractor may be disqualified from bidding further work with the Department if the progress towards completing the work is unsatisfactory. Unsatisfactory progress toward completing the work shall be when the "Percent Time Elapsed" exceeds the "Percent Complete" by more than 25 %. Percent Time Elapsed and Percent Complete are defined as follows:

$$\text{Percent Time Elapsed} = 100 \times \left[\frac{\text{Days Charged}}{\text{CT + TE}} \right]$$

$$\text{Percent Complete} = 100 \times \left[\frac{\text{WP} + \text{FA}_1}{\text{AC - PBPI}} \right]$$

Where,
Days Charged = Number of days charged towards the completion of the work.
CT = Original Contract time. (Days)
TE = Number of days of time extension. (Days)
WP = "Work Performed" as defined in Article 101.01. (Dollars)

FA_1 = Payments for Extra Work paid by Force Account. (Dollars)
AC = "Adjusted Contract Amount" as defined in Article 101.01. (Dollars)
PBPI = Payments for "Progress Based Pay Items" as defined in Article 101.01. (Dollars)

The decimal values derived by the terms "(Days Charged) / (CT + TE)" and "(WP + FA_1) / (AC - PBPI)" shall be rounded to the nearest hundredth.

When the Contractor's progress towards completing the work is unsatisfactory a warning notice of possible disqualification will be sent from the State Construction Engineer to the Contractor by certified mail (return receipt requested). The Contractor will be allowed 10 calendar days from the date of the receipt of the notice of possible disqualification to complete enough of the work to make the progress satisfactory or submit in writing an acceptable explanation to the State Construction Engineer for why the progress is unsatisfactory. At the end of the ten-day period, a final notice of disqualification from further bidding will be issued if the progress of the work remains unsatisfactory or the explanation for the unsatisfactory progress is unacceptable.

108.05 Limitation of Operation.

The Contractor shall always conduct the work in such a manner and in such sequence as will ensure the least interference with traffic. He shall have due regard to the location of detours and to the provisions for handling traffic. The Engineer may require the Contractor to finish a section on which work is in progress before work is started on any additional section if the opening of such section is essential to public convenience.

108.06 Character of Workmen, Methods, and Equipment.

The Contractor shall always employ sufficient labor and equipment for prosecuting the several classes of work to full completion in the manner and time required by these specifications.

All workmen shall have sufficient skill and experience to perform properly the work assigned to them. Workmen engaged in special work or skilled work shall have sufficient experience in such work and in the operation of the equipment required to perform all work properly and satisfactorily.

Any person employed by the Contractor or by any Subcontractor who, in the opinion of the Engineer, does not perform his work in a proper and skillful manner or is intemperate or disorderly shall, at the written request of the Engineer, be removed forthwith by the Contractor or Subcontractor employing such person, and shall not again be employed in any portion of the work without the approval of the Engineer.

Should the Contractor fail to remove such person or persons as required above or fail to furnish suitable and sufficient personnel for the proper prosecution of the work, the Engineer may suspend the work by written notice until compliance with such orders.

All equipment which is proposed to be used on the work shall be of sufficient size and in such mechanical condition as to meet requirements of the work and to produce a satisfactory quality of work. Equipment used on any portion of the project shall be such that no injury to the roadway, adjacent property, or other highways will result from its use.

When the methods and equipment to be used by the Contractor in accomplishing the construction are not prescribed in the contract, the Contractor is free to use any methods or equipment that he demonstrates to the satisfaction of the Engineer will accomplish the contract work in conformity with the requirements of the contract.

When the contract specifies the use of certain methods and equipment, such methods and equipment shall be used unless others are authorized by the Engineer. If the Contractor desires to use a method or type of equipment other than those specified in the contract, he may request authority from the Engineer to do so. The request shall be in writing and shall include a full description of the methods and equipment proposed and the reasons for desiring to make the change. If approval is given, it will be on the condition that the Contractor will be fully responsible for producing work in conformity with contract requirements. If, after trial use of the substituted methods of equipment, the Engineer determines that the work produced does not meet contract requirements, the Contractor shall discontinue the use of the substitute method or equipment and shall complete the remaining construction with the specified methods and equipment. The Contractor shall remove the deficient work and replace it with work of specified quality or take such other corrective action as the Engineer may direct. No change will be made in basis of payment for the construction items involved nor in contract time as result of authorizing a change in methods or equipment under these provisions.

108.07 Temporary Suspension of Work.

(a) Authority to Suspend.

The Engineer shall have the authority to suspend the work wholly or in part by written order to the Contractor for such period or periods as he may deem necessary due to either of the following reasons:

1. Failure on the part of the Contractor to carry out orders given or to perform any provision of the contract in which case time will be charged and no time extension will be granted, or
2. Unsuitable weather or other essential conditions of a highly unusual or unpredictable nature which he considers unfavorable for the suitable prosecution of the work in which case either time charges will be suspended, or a time extension will be granted.

Upon suspension, the work shall be put in proper and satisfactory condition, carefully covered and properly protected, as directed by the Engineer. Reference is made to Article 105.13.

(b) Legal Stoppage or Termination.

Should the progress of the work be stopped by a temporary injunction, court restraining order, process of judgment of any kind directed to either of the parties hereto, then such period of delay will not be charged against the contract time. The State shall not be liable to the Contractor for the said legal delays of 120 calendar days or less, or for termination of the contract because of a legal order except as provided in Subarticle 108.14(b). Consideration will be given to properly documented added costs for a legal delay in excess of 120 calendar days, if submitted in accordance with Section 110, Claims. If a herein noted delay is of such duration as not to be in the best interest of the State, as determined by the Director, he may, by written order, terminate the contract in the same manner prescribed in Subarticle 108.14(c) for termination of a contract.

(c) Automatic Time Suspension.

Time will be suspended on calendar day projects during periods when no work can be performed on the project due to operational check periods or seasonal limitations when such periods are required by the specifications. Time will also be suspended for specification mandated curing periods for placement of permanent traffic stripe when all other work has been completed and the traveling public has full use of the highway.

(d) Suspension Considerations.

If the performance of all or any portion of the work is suspended or delayed by the Engineer in writing for an unreasonable period of time (not originally anticipated, customary, or inherent to the construction industry) and the Contractor believes that additional compensation and/or contract time is due as a result of such suspension or delay, the Contractor shall submit to the Engineer in writing a request for adjustment within seven calendar days of receipt of the notice to resume work. The request shall set forth the reasons and support for such adjustment.

Upon receipt, the Engineer will evaluate the Contractor's request. If the Engineer agrees that the cost and/or time required for the performance of the contract has increased as a result of such suspension and the suspension was caused by conditions beyond the control of and not the fault of the Contractor, its suppliers, or subcontractors at any approved tier, and not caused by weather, the Engineer will make an adjustment (excluding profit) and modify the contract in writing accordingly. The Engineer will notify the Contractor of his determination whether or not an adjustment of the contract is warranted.

No contract adjustment will be allowed unless the Contractor has submitted the request for adjustment within the time prescribed.

No contract adjustment will be allowed under this clause to the extent that performance would have been suspended or delayed by any other cause, or for which an adjustment is provided for or excluded under any other term or condition of this contract.

108.08 Determination of Contract Time.

(a) General.

The number of working days or calendar days allowed or the calendar date specified for completion of the work included in the contract will be fixed by the Department, will be stated in the proposal and contract, and will be designated as the contract time.

(b) Beginning and End of Contract Time.

Contract time charges shall begin when the Contractor begins work on a pay item or on incidental work that will interfere with traffic, but in no case later than 15 calendar days after date of issue of "notice to proceed." Time charges shall end upon satisfactory completion of all pay items in the contract.

(c) Days Work Not Permitted.

The Contractor shall not permit work on any pay item to be done on Sundays and the following holidays: National Memorial Day, Fourth of July, Labor Day, Thanksgiving Day and Christmas Day, except with written permission of the Engineer.

(d) Monthly Statement and Time Charges.

1. Contracts on a Workday Basis.

For projects on a working day basis, the Engineer will furnish the Contractor with a monthly time statement for the preceding month. This statement will show the number of working days charged as outlined in the definition of Working Day in Subarticle 101.01(b), the number of working days in the contract, and the number of working days remaining to complete the contract.

Under the provisions of Article 105.01, the Engineer will determine the controlling item or items of work based on consideration of the Contractor's approved Schedule of Operations and the operations that should be in progress at the time to provide for the orderly completion of the work within the contract time. Consideration to not charging time will be given when delays of six hours or more occur when the causes for delays may be due to, but not restricted to the following:

a. Unavoidable causes beyond the control of the Contractor, without fault or negligence on his part.
b. Contractor's proof (in form of letters from suppliers) of inability to obtain materials due to regionwide shortage of such materials.
c. Failure on the part of a utility company to diligently perform work not under the control of the Contractor.
d. Acts of the Department.
e. Recovery Time.
f. Strikes.

A working day will not be charged when the placement of hot mix asphalt is the controlling item of work and the start-up operation is in an adjustment period unless the plant resumes production.

Upon receiving the monthly time statement, the Contractor shall review the statement and compare the time charges with his records. If the Contractor disagrees with the time charges on the statement, he shall file a written protest setting forth the reasons why he considers the monthly time statement incorrect. The Contractor is encouraged to file any such protest as soon as possible after receiving the time statement.

2. Contracts on a Calendar Day or Date Basis.

For projects on a calendar day or date basis, a statement will be furnished the Contractor indicating the number of calendar days remaining in the contract. For contracts that have a calendar completion date, the days assigned for contract time will be the number of calendar days available to the Contractor for performance of the work (from the beginning of contract time charges through the original calendar completion date). A revised completion date will be established for time extensions by adding the approved number of days of extension to the original contract completion date.

108.09 Extension of Contract Time.

(a) Days or Date of Time Extension.

If approved by the Engineer, contract time extensions will be given as additional working days, additional calendar days or a revised calendar completion date in accordance with the type of time that is set in the original contract for the completion of the work. An extended time for completion, once approved, shall be in full force and effect the same as though it were the original time for completion.

(b) Extension of Contract Time due to Extra Work.

The original contract time may be extended due to the addition of extra work if the Engineer determines that the extra work will affect the schedule for the completion of the project. The contract time will be modified when the extra work is made a part of the contract.

(c) Extension of Contract Time due to Contract Overrun.

An extension of contract time will be made by the Engineer to account for the overrun of the required work (unexpected increase in the quantity of work). The time extension will be calculated using the following formula.

$$TE = CT \left[\frac{WP + FA_2 - EW}{OC - PBPI_1} - 1.0 \right]$$

(This formula is only applicable when WP – EW is greater than OC – PBPI.)

Where,

TE = Number of days of time extension. (Days) (Rounded up to the nearest whole number.)
CT = Original Contract time. (Days)
WP = "Work Performed" as defined in Article 101.01. (Dollars)
FA_2 = Payments for Extra Work paid by Force Account except for Force Account work that has been covered under an approved Time Extension. (Dollars)
EW = Total Amount of Extra Work paid by Supplemental Agreement, regardless of whether or not a time extension is approved as part of the agreement. (Dollars)
OC = Original Contract Amount. (Dollars)
$PBPI_1$ = Payments for "Progress Based Pay Items" as defined in Article 101.01. (Dollars)

For contracts that have a calendar completion date, there will be no automatic extension of contract time based on contract overrun. Extensions of contract time for calendar date projects must be based on either extra work or an approved Contractor request for additional time.

(d) Contractor's Request for an Extension of Contract Time.

If the Contractor anticipates that the work cannot be completed within the contract time (which includes approved time extensions) the Engineer may consider the Contractor's request for an extension of contract time. The request must be submitted in writing to the Engineer. The request shall include the specific dates and amount of time requested by the Contractor and a full description of the circumstances that were beyond the control of the Contractor and could not have been anticipated by the Contractor that caused the delay in the overall completion of the work. The controlling work items for each day and the factors that affected progress on these items shall also be provided. An assertion that the contract time is inadequate for the completion of the work will not be considered an acceptable reason for a time extension.

The Contractor shall submit the request for an extension of contract time to the Engineer for evaluation. The Engineer will evaluate the request and then send a recommendation for approval, disapproval or partial approval to the Construction Engineer for further evaluation.

The State Construction Engineer or Region Engineer may approve a time extension if the work was delayed because of conditions beyond the control of the Contractor and could not have been anticipated by the Contractor.

The Transportation Director will make a final determination of the amount of the time extension if the Contractor disagrees with the time extension designated by the State Construction Engineer or Region Engineer. The Contractor may submit the disputed request for a time extension directly, in writing, to the Transportation Director. The Transportation Director will be the final authority in evaluating the disputed request for the time extension. The Transportation Director may send the request to the Claims Committee for a recommendation before making the final decision. Time extension requests will not be referred to the Claims Appeal Board. Information concerning the Claims Committee and Claims Appeal Board is given in Section 110.

108.10 Failure to Complete Work Within Contract Time.

Should the Contractor, or in case of default, the surety, fail to complete the work within the time stipulated in the contract or the adjusted time as granted under the provisions of Article 108.09, a deduction for each calendar day or work day that any work shall remain uncompleted, an amount indicated by the Liquidated Damages Schedule shown in Article 108.11 or provided in the contract documents shall be deducted from any monies due the Contractor on monthly estimates. Any adjustments due to approved time extensions or overruns in the contract amount will be made on the monthly, semi-final or final estimate as may be appropriate.

Liquidated damages assessed as provided in these Specifications is not a penalty, but is intended to compensate the State for increased time in administering the contract, supervision, inspection and

management, particularly that management and inspection which requires maintaining normal field project management forces for a longer time on any construction operation or phase than originally contemplated when the contract period was agreed upon in the contract.

Permitting the Contractor to continue and finish the work or any part of it after the time fixed for its completion, or after the date to which the time for completion may have been extended, will in no way operate as a waiver on the part of the Department of any of its rights under the contract.

108.11 Schedule of Liquidated Damages.

Original Contract Amount		Liquidated Damages Daily Charge	
More Than	To & Including	Calendar Day or Fixed Date	Workday
$ 0	$ 500,000	$1,850	$3,700
$ 500,000	$ 2,000,000	$2,550	$5,100
$ 2,000,000	$10,000,000	$2,650	$5,300
$10,000,000	------	$3,350	$6,700

When the contract time is on the calendar day or date basis, the schedule for calendar days shall be used. When the contract time is on a workday basis, the schedule for work days shall be used.

108.12 Default of Contract.

If the Contractor:

1. Fails to begin the work under the contract within the time specified in the "Notice to Proceed," or
2. Fails to perform the work with sufficient workmen and equipment or with sufficient materials to assure the prompt completion of said work, or
3. Performs the work unsuitably or neglects or refuses to remove materials or to perform anew such work as may be rejected as unacceptable and unsuitable, or
4. Discontinues the prosecution of the work, or
5. Fails to resume work which has been discontinued within a reasonable time after notice to do so, or
6. Becomes insolvent or is declared bankrupt, or commits any act of bankruptcy or insolvency, or
7. Allows any final judgement to stand against him unsatisfied for a period of 10 days, or
8. Makes an assignment without the consent of the surety and approval of the Department, or
9. Fails to furnish documentation necessary for final acceptance and payment, or
10. Fails to carry out provisions of the contract, or
11. For any other cause whatsoever, fails to carry on the work in an acceptable manner, the Engineer will give notice in writing to the Contractor and his surety for such delay, neglect, or default.

The Contractor or surety, within a period of 10 days after such notice, does not proceed in accordance therewith, then the Department will, upon written notification from the Engineer of the fact of such delay, neglect or default and the Contractor's failure to comply with such notice, have full power and authority without violating the contract, to take the prosecution of the work out of the hands of the Contractor. The Department may appropriate or use any or all materials and equipment on the ground as may be suitable and acceptable and may enter into an agreement for the completion of said contract according to the terms and provisions thereof or use such other methods as in the opinion of the Engineer will be required for the completion of said contract in an acceptable manner.

All costs and charges incurred by the Department, together with the cost of completing the work under contract, will be deducted from any monies due or which may become due said Contractor. If such expense exceeds the sum which would have been payable under the contract, then the Contractor and the Surety shall be liable and shall pay to the Department the amount of such excess.

Notice to the Contractor shall be deemed to be served when delivered to the person in charge of any office used by the Contractor, to his representative at or near the work, or by certified letter, return receipt requested, addressed to the Contractor at his last known place of business.

In addition to the provisions provided in this Article, failure of the Contractor to sign the final estimate within the time limits prescribed in Subarticle 109.12(d) will be classified as a default.

108.13 Blank.

108.14 Termination of Contractor's Responsibility.

(a) General.

The Contract will be considered complete when all work has been finished, the final inspection made by the Engineer, the project accepted by the Department, the necessary advertisements published, all in accordance with the provisions of Article 105.15, and the final estimate paid. Upon completion of the above, the Contractor's responsibility will then cease, except as set forth in his bonds.

(b) Special Conditions.

Should the Department find that the Contractor is unable to complete his contract work due to the inability to obtain specified materials or satisfactory substitutes therefor or labor, because of laws, rules or regulations placed into effect or the inability of industry to produce specified materials within a reasonable time; the Director may, by written notice, relieve the Contractor from that portion of the contract which cannot be performed. Also, should the State determine that further prosecution of the work on a project will not be in the best interest of the public, the Director may, by written order, eliminate or delete any or all remaining items of work on a contract.

The deletion or elimination of work under the above conditions will in no way affect the unit prices bid in the contract. Work actually performed will be paid for at the contract unit prices. Should relief from performance of the contract or any portion thereof directly cause the loss of any work or materials already furnished under the terms of the contract, the Contractor will be reimbursed for the actual cost of salvaging the materials or as mutually agreed to.

Materials obtained by the Contractor, which have been inspected, tested and accepted by the Engineer but not incorporated into the work may, at the option of the Engineer, be purchased in accordance with the provisions of Article 109.06.

If, by the deletion of work items, the volume of work completed is too small to compensate for the organization and moving of equipment to and from the work, consideration will be given to reimbursement for actual costs thereof; the intent being that an equitable settlement be made; compensation for this, however, shall not exceed the percentage differentiation between plan quantities and actual quantities performed, and if 75% of the estimated work was performed, no compensation for the organization and moving of equipment to and from the work will be allowed. In no event will a claim for loss of anticipated profits be considered. The deletion or elimination of work under the above conditions shall in no way relieve the Contractor from his responsibility for work actually performed nor any just claims as a result thereof.

Final termination of the contract shall be as noted in Subarticle (a) above, for the work completed.

(c) National Emergency.

The Director may, by written order, terminate the contract or a portion thereof when the Contractor is prevented from proceeding with the construction contract as a direct result of an Executive Order of the President with respect to the prosecution of war or in the interest of national defense.

When contracts, or any portion thereof, are terminated before completion of all items of work in the contract, payment will be made for the actual units or items of work completed at the contract unit price bid, or as mutually agreed for items of work partially completed or not started. No claim for loss of anticipated profits will be considered.

Reimbursement for organization of the work and moving equipment to and from the job will be considered where the volume of work completed is small to compensate the Contractor for these expenses under the contract unit prices, the intent being that an equitable settlement will be made with the Contractor.

Acceptable materials, obtained by the Contractor for the work, that have been inspected, tested, and accepted by the Engineer, and are not incorporated in the work may, at the option of the Engineer, be purchased from the Contractor in accordance with the provisions of Article 109.06.

Final termination of the contract shall be as noted in Subarticle (a) above, for the work completed.

DIVISION 200
EARTHWORK

SECTION 201
CLEARING AND GRUBBING

201.01 Description.

Clearing and grubbing shall be the removal and disposal of vegetation (trees, shrubs, vines, stumps, roots, etc.) and other objects (trash, refuse, debris, etc.) within designated limits.

201.02 Materials.

Herbicides allowed for use shall be approved by the Department. Only herbicides listed in the ALDOT "Manual for Roadside Vegetation Management" shall be used.

201.03 Construction Requirements.

(a) Control of Erosion and Stormwater Runoff.

The requirements for the control of erosion and stormwater runoff are given in Article 107.21 and Section 665. These requirements shall be implemented prior to the beginning of initial clearing operations.

(b) Work Limits.

The Engineer will designate the location and extent of right of way lines, easement lines and construction limits. Work limits may be designated by the Engineer within right of way lines, easement lines, and construction limits when limited work is required.

The Contractor shall not exceed the maximum limit established for the exposure of erodible material.

(c) Vegetation Designated to Remain Undisturbed.

The Contractor shall not damage vegetation and terrain that the Engineer designates to remain undisturbed. Damages shall be repaired without additional compensation as directed by the Engineer.

(d) Disposal of Materials.

The Contractor shall dispose of all removed materials. The Contractor shall comply with all local, State and Federal laws and ordinances pertaining to disposal.

The Contractor shall submit a plan for the satisfactory disposal of materials. Clearing shall not begin until the Engineer accepts the plan as having sufficient detail. The plan shall include an acceptable means for the treatment of disposal areas so as not to present an unsightly appearance, create a public nuisance or create future maintenance problems for the Department.

The disposal plan shall provide for the satisfactory disposal of biodegradable materials and rubbish within 30 days after accumulation, unless a longer period is authorized in writing by the Engineer, to prevent the infestation of pests.

Disposal by the burning of perishable materials will be permitted only when authorized in accordance with the requirements given in Articles 107.13 and 107.22. Burning will not be allowed on the State right of way unless approved in writing by the Engineer.

Disposal by the indiscriminate dumping of materials, with or without the property owner's consent, is not satisfactory disposal. The Contractor shall obtain written permission from the property owner for any disposal area. A copy of the written permission from the property owner shall be submitted to the Engineer prior to disposal.

The use of mechanical brush clippers or other recycling methods may be considered for approval.

(e) Clearing and Grubbing

1. Clearing.

   Clearing shall be the removal of vegetation on and above the ground surface within the construction limits.

   Clearing shall also be the selective removal (removal designated by the Engineer) of vegetation beyond the construction limits to the limits of the right of way or easement lines.

   Trash, refuse and debris shall be removed with the removal of vegetation.

2. Grubbing.

   The areas within the limits of construction shall be grubbed as directed by the Engineer and as follows.

   - Grubbing within fill areas shall be the complete removal, regardless of depth in the ground, of vegetation and other objects where any part of the vegetation or object is within 1 foot {300 mm} of the ground surface.
   - Grubbing outside of actual foundation excavation lines at bridge sites and channel changes shall be limited as directed by the Engineer so that stumps may be left in place to aid in erosion control.
   - Grubbing in all other areas within the construction limits shall be the complete removal of vegetation and other objects where any part of the vegetation or object is visible at the ground surface.

3. Clearing and Grubbing at Bridge Construction Sites.

   When a pay item is not given on the plans for the clearing and grubbing at bridge construction sites, the Contractor shall clear and grub the entire width of the right of way without extra compensation. Clearing and grubbing shall begin 1 foot {300 mm} before the beginning of any part of a structure (usually the structure wings, end bents or abutments) and shall end 1 foot {300 mm} beyond the end of any part of the structure.

(f) Selective Clearing

Selective Clearing shall comply with the requirements shown on the plans and shall be performed as directed by the Engineer.

(g) Clearing.

1. Required Clearing.

   The work of clearing is usually required for the removal of trees, bushes, trash and refuse along the right of way where earthwork will not be required.

   Clearing shall be the removal of trees and bushes and possibly the chipping of timber and the spreading of the chips. Any areas where chipping and spreading are allowed or required will be shown on the plans. Clearing shall also be the removal and disposal of trash, refuse and debris.

2. Damage Caused By Removal Operations.

   Off-road equipment shall not travel on, be parked on, or operate on the wearing surface of the roadway. The Contractor shall perform the work as directed by the Engineer to minimize the damage done to the existing terrain. Damage to the paved or grassed shoulders shall be repaired by the Contractor without extra compensation. When conditions exist where deep rutting or other grade disturbances are caused by the operation of machinery, work shall cease, or alternate methods shall be chosen to complete the work. Any damaged areas shall be repaired at the contractor's expense.

3. Cutting Down Trees.

   Where trees cannot be felled without endangering traffic, encroachment on the roadway, injury to other trees, structures, or property, they shall be cut down in sections.

4. Mowing.

   Areas that have cross-sectional slopes of 2:1 or flatter shall be mowed to a height of 6 inches {150 mm} (max.) with a rotary type cutter in one continuous operation after trees and underbrush have been removed. Mowing shall be completed prior to the final acceptance of the project.

5. Areas Where the Chipping of Timber and Spreading of Chips Are Required.

   Areas where the chipping of timber and spreading the chips is allowed or required will be shown on the plans. Tree trunks, limbs and bushes shall be cut into chips using a chipping machine. The average largest dimension of a chip shall not be greater than 4 inches {100 mm}. The chips shall be loosely dispersed to eliminate any accumulation of a continuous blanket layer. The Contractor shall chip any debris created by the clearing operation and any pre-existing debris, such as dead trees and limbs, to leave the area suitable for mowing.

6. Removal By the End of the Workday.

   Tree trunks and limbs, 4 inches {100 mm} or greater in diameter, shall be removed from the project site, or chipped if required, by the end of the workday on which they are cut.

7. Removal of Stumps.

   Stumps shall be removed to the groundline or below. Removal shall be accomplished by cutting or grinding. Additionally, hardwood tree stumps shall be removed to a minimum depth of 1 foot {300 mm} below the ground line or treated with an ALDOT approved dyed herbicide designated for cut stump treatment immediately after cutting or grinding.

201.04 Method of Measurement.

(a) General.

For Pay Item 201-A, the area to be cleared and grubbed will include the entire area within the construction limits, right of way lines and easement lines and will be measured as one lump sum unit. An approximate number of acres {hectares} will be given in the pay item description. For bridge construction sites with less than 1 acre of clearing and grubbing, the required work will be subsidiary of other items as shown on the plans.

For Pay Item 201-B, the roadside areas required to be selectively cleared will be measured in acres {hectares}, computed from surface measurements of the area cleared.

For Pay Item 201-C, roadside areas required to be cleared will be measured as one lump sum unit.

(b) Partial Payment (Item 201-A).

The estimated percentage of the total area cleared and grubbed each month will be multiplied by the Contractor's bid price for Item 201-A. These percentage payments will be made each month work is performed on this item until the entire project has been cleared and grubbed.

201.05 Basis of Payment.

(a) Unit Price Coverage.

For Item 201-A, clearing and grubbing will be paid for at the contract unit price which shall be full compensation for furnishing all materials, equipment, tools, labor and incidentals necessary to complete and maintain the work until acceptance of the project. Where the limits of construction are shown on the plans to extend beyond the beginning or end of the project, payment for the clearing and grubbing of these areas shall be included in the contract price.

If the location of the limits of construction, right of way lines, or easement lines result in changes in areas from those shown on the plans, payment will be handled as Extra Work as defined in Article 104.03.

For Item 201-B, selective clearing will be paid for at the contract unit price which shall be full compensation for furnishing all materials, equipment, tools, labor and incidentals necessary to complete and maintain the work until acceptance of the project.

For Item 201-C, clearing will be paid for at the contract unit price which shall be full compensation for cutting, removal of debris, chipping, spreading of chips, bushhogging, herbicide, repairing of damage to the existing ground surface (including blading, topsoil, seeding, etc.), and for furnishing all materials, equipment, tools, labor and incidentals necessary to complete and maintain the work until acceptance of the project.

(b) Payment will be Made Under Item No.:

201-A Clearing & Grubbing (maximum allowable bid $_____ per acre {hectare})
(Approximately _____ acres {hectares}) - per lump sum
201-B Selective Clearing - per acre {hectare}
201-C Clearing - per lump sum

SECTION 205
REMOVAL AND RELOCATION OF STRUCTURES

205.01 Description.

The work under this Section shall cover the disposal or the re-establishment of structures, such as buildings, dwellings, etc., as designated on the plans or in the proposal. This work shall also include all appurtenances such as out buildings, fences, walks, driveways, utility facilities, septic tanks, other man-made objects, established lawns, shrubs, and designated trees associated with the structure.

The Department assumes no responsibility for furnishing building sites for structures other than those designated for relocation by the plans and assumes no responsibility for moving permits.

205.02 Materials.

Any material necessary for the re-establishment of a relocated structure shall meet the requirements of applicable building codes and regulations. In all cases, new material shall be equal to or better than the material in the original structure.

205.03 Construction Requirements.

(a) Laws, Rules, Regulations, and Ordinances.

The Contractor shall comply with all Federal, State, City, and County laws, rules, regulations, and ordinances covering moving, re-establishing, demolition or disposal of structures and appurtenances. Any utility service requiring disconnection or reconnection of a structure shall be done in accordance with the utility's regulations and shall meet the approval of the Utility.

(b) Removal of Structures.

1. Removal.

Removal of a structure shall be the demolition and disposal of the structure identified in the contract. It shall also be the restoration of the area of removal to a stable uniformly graded ground surface. At least ten workdays prior to removal of any structure, the contractor must file ADEM Form 496 with the appropriate regulatory authority as designated by the form instructions.

2. Asbestos.

a. Examination of Structure for Asbestos before Structure Removal.

The Contractor shall determine if asbestos is present in or on a structure before it is removed. The structure shall be examined for the presence of asbestos in accordance with the rules and regulations of the governmental agencies that have regulatory jurisdiction over the work (ADEM, OSHA, ADPH, etc.). An Alabama accredited asbestos inspector must conduct a thorough inspection of each structure, and the report generated shall be submitted by the

contractor to the Engineer and the above-described regulatory authority. There will be no direct payment for the cost of the investigation required to determine whether asbestos is present in or on the structure. The determination of the presence of asbestos shall be a subsidiary obligation of Pay Item 205-A "Removal of Structures".

b. Credentials for Removal and Disposal of Asbestos.

The removal and disposal of asbestos shall be done by Contractors or Subcontractors that have accreditation credentials from the "Alabama Safe State Environmental Programs" and are certified by ADEM as Asbestos Removal Contractors.

c. Removal of Asbestos from a Structure.

If asbestos is found in a structure the Contractor shall obtain three price quotes for the cost of the removal and disposal of the asbestos. The price quotes shall be submitted to the Engineer for the selection of the Contractor or Subcontractor for the removal work. The cost of the removal work will be paid for as Extra Work in accordance with the requirements given in Article 109.04.

3. Septic Tanks.

The removal (and abandonment) of septic tanks shall be done in accordance with the requirements of the Alabama Department of Public Health (ADPH). Direct payment will not be made for pumping the contents of the tank prior to removal of the septic tank and the sand or aggregate backfill that may be required to meet regulatory requirements for backfilling abandoned septic tanks.

If the removal of septic tanks is not shown to be required on the plans, and the tanks are required to be removed by the Engineer, payment for the removal will be made as Extra Work in accordance with the requirements given in Article 109.04.

(c) Relocation of Structures.

1. General.

No structure under this classification shall be relocated until it has been inspected by the Engineer in company with the Contractor and the owners and/or lessees and its actual condition determined. An itemized written report of the condition of the structure at the time of such inspection shall be prepared by the Contractor and signed by the Engineer, Contractor, owners and/or lessees and a copy given to all parties concerned. Digital photographs shall be made of the structure as directed by the Engineer. Prints of the photographs shall be attached to and become a part of each copy of the report before the report is signed. Once a Contractor begins moving a structure, he shall vigorously and continuously prosecute its moving and reestablishment in such a manner that the owner or lessee will be inconvenienced the shortest time possible. If the work is not expedited, the Engineer may order all work stopped or withhold estimates until the work on the structure in question is satisfactorily completed.

Structures that are moved to new locations or elevations shall be set upon substantial foundations conforming to the new elevations and sites. Sound materials salvaged from the same unit may be used, supplemented by necessary new materials similar to those in the existing foundations. Any damage or injury occasioned by moving shall be repaired by the Contractor without additional compensation.

Certain structures may be designated to be cut off and reestablished at the right of way line. Care shall be taken to avoid damage to the remainder of the structure and any damage thereto shall be repaired by the Contractor without additional compensation. The cutoff portion of the building outside the right of way shall be braced and refaced along the right of way line as directed, using new or suitable materials salvaged from the same unit.

The closure of a septic tank shall be done in accordance with the requirements given for "Removal of Structures".

Established shrubs and lawns, along with designated trees, are considered a part of a structure relocation, hence, they shall be either transplanted or replaced in kind. Transplanting procedures shall be consistent with details noted in these specifications for transplanting trees and shrubs and for grassing work.

2. Structure Release.

Structures and appurtenances shall not be considered satisfactorily relocated until the Contractor has furnished the Engineer with a release from the owners and lessees (if applicable) prepared on the form prescribed by the Department for the purpose. This release from the owners

and the lessees shall not preclude the Engineer from inspecting the moved structure and requiring any corrective work to be done that he considers necessary. No disposition or modification of the structure, other than that shown on the plans, will be made by any agreement between the Contractor and owner without the prior written approval of the Engineer.

If the owners or lessees of any structure refuse to execute a release for the Contractor and, if after inspection, the Engineer determines that the Contractor has done all that could be reasonably expected to be done to affect a satisfactory removal and re-establishment of the structure, the Engineer may certify such upon the Department's form, which will be sufficient to release monies due to the Contractor; however, such certification and release of monies to the Contractor will in no way be construed as a release of the liability or responsibility of the Contractor under Subarticle 107.14(a), but shall be a release only for the purpose of releasing monies to the Contractor.

(d) Disposal of Debris and Cleanup of Site after Removal and Relocation.

Disposal of debris and materials not allowed for reuse shall be done in accordance with the requirements for disposal given in Subarticle 201.03(d). After the removal of a structure has been completed the Contractor shall grade the area of removal to produce a stable uniform ground surface. When clearing and grubbing is not a part of the contract, the Contractor shall obtain approval from the Engineer to cut trees that interfere with structure removal or relocation.

If allowed by the Engineer, stone, bricks, broken concrete, concrete blocks, and concrete masonry of all types may be used to fill low areas, basements, and other depressions except abandoned septic tanks.

205.04 Method of Measurement.

The removal or relocation of structures will be measured per each structure removed or relocated.

205.05 Basis of Payment.

(a) Unit Price Coverage.

Payment will be made at the contract unit price which shall be payment in full for the removal and disposal off the right of way or the relocation and re-establishing of the structures including utilities, all appurtenances, the furnishing of any materials needed, equipment, tools, labor and incidentals necessary to complete all work required by this Section. This shall include all utility deposits, bonds, tie-in fees, etc., and other actions necessary to re-establish the structure in an operable condition. Any site grading, including basement excavation for structures, shall be considered a part of the structure unless otherwise provided by plan details.

The removal or relocation of any or all structures may be deleted from the contract at the discretion of the Engineer.

(b) Payment will be made under Item No.:

205-A Removal of Structures, Structure No. ___- per each
205-B Relocation of Structures, Structure No. ___- per each

SECTION 206
REMOVAL OF MISCELLANEOUS EXISTING DRAINAGE AND OTHER FACILITIES

206.01 Description.

The work under this Section shall cover the removal, wholly or in part, and the satisfactory salvaging or disposal of miscellaneous facilities and obstructions which will not be permitted to remain within the right of way except those items removed and disposed of under other sections of these specifications. Salvaging materials for reuse by the State will be required only when such is designated by the plans or proposal; otherwise, the materials shall become the property of the Contractor.

Quantities and limits of this type of work indicated on the plans are approximate only, subject to the Engineer's evaluation of the actual site condition.

206.02 Materials.

All new material required shall meet the applicable requirements of Division 800, Materials.

206.03 Construction Requirements.

Each existing bridge or portion thereof requires a removal plan to be submitted to the Construction Bureau prior to starting demolition.

The bridge removal plan shall include the following information:

1. Station numbers for the existing bridge to be removed.
2. Description of the bridge: number of spans, length and width of bridge, number and types of bridge components.
3. Sequence of bridge removal.
4. List of equipment to be used including the make, model, number and size.
5. List and description/drawings of any proposed temporary encroachments if applicable for removing any bridge components within or over a stream, water body or wetland. Temporary encroachments shall be submitted in accordance with Articles 107.09, 107.23, and applicable plan requirements.
6. List of all materials and methods proposed to be used in accordance with the plans and stormwater best management practices to protect to the maximum extent practicable the water quality of the intersecting stream, water body or wetland during the bridge removal.
7. Estimated length of time for the bridge removal.
8. Plan for final disposition of materials removed.
9. Photographs of the existing bridge.

No demolition work can start until the removal plan has been accepted and distributed. The Contractor and the Project Manager shall meet to discuss the removal plan prior to beginning any demolition work.

No existing bridge shall be removed or closed to traffic until satisfactory provisions for the passage of traffic have been made and approved by the Engineer.

When the plans provide for using old bridge substructures or parts of them as permanent parts of a new structure, only those portions shall be removed which are so indicated on the plans.

All portions of existing bridges, including debris, at or just above the mudline of a stream, water body, or wetland shall be removed unless otherwise specified on the plans. Otherwise, all portions of existing bridges may be either removed entirely or broken down to an elevation of at least 3 feet {1 m} below subgrade or natural ground.

During the removal of an existing bridge, no heavy equipment (except as noted above for temporary encroachments) shall be allowed in a stream, water body or wetland. Portions of an existing bridge over a stream, water body or wetland, including any piers/bents within them, shall be removed from the top down utilizing saw cutting or other approved methods which prevent to the maximum extent practicable debris from entering the water. Slurry from any saw cutting operations shall also be contained to the maximum extent practicable.

On navigable waterways, provisions shall also be made for waterway traffic in accordance with U.S. Coast Guard and/or Corps of Engineers, Rules and Regulations. The Coast Guard and Corps of Engineers shall be given notification of the dates and work procedures planned for the removal of existing bridges over navigable waterways. The Contractor shall give this notification at least 21 calendar days prior to the date of the beginning of the removal work.

Use of methods or equipment which might damage completed structures, structures to be retained, or portions of structures, will not be permitted.

Blasting will not be permitted without prior written approval of the Engineer. Blasting, if approved, shall be in accordance with Article 107.11.

Where portions of existing pavement, curb and gutter, walks, and similar items are to remain and join the surface of the new work, they shall be removed to an existing joint or cut off to a neat line with vertical face using saws or other approved equipment that will not damage the retained portion of the work.

Pipe that is not to be salvaged shall be removed or, if concrete, it may be broken up in place.

In removing manholes, inlets, etc., any live sewers connected with them shall be satisfactorily bypassed, rebuilt, and reconnected without additional compensation.

Removing railway or street railway tracks shall include removal of all rails, paving, switches, frogs, guardrails, ties, track, encasement, and other appurtenances. Ballast and concrete foundations shall be included unless otherwise directed.

Removing pipe headwalls shall include removal and disposal of the encased joint of pipe unless otherwise directed.

Rubble shall be removed in accordance with the requirements shown on the plans.

Walls and foundations that are not needed shall be removed to an elevation of at least 2 feet {600 mm} below excavation limits in excavation areas, 3 feet {1 m} below subgrade in embankment areas and to ground level or as directed elsewhere.

All trenches and excavations resulting from the removal or breaking down of old culverts or structures shall be filled with suitable materials placed in accordance with Section 210.

Any reinforcing steel left in place to serve as dowels or ties shall not be injured by the removal of the concrete. Such dowels or ties shall be cleaned and straightened or bent as required to fit new work.

Removing cable guiderail shall include removal and disposal of all related items (Cables, end anchors, footings, posts, concrete pads, hardware, etc.) associated with the cable guiderail system.

206.04 Disposal of Materials.

(a) Designated Salvable Materials.

1. Where designated on the plans or in the proposal to be salvaged, all sound materials having salvage value shall be carefully removed without undue splitting or breakage and all bolts, nails, etc. shall be removed therefrom. The use of equipment or facilities which might damage members or portions of the structure to be salvaged will not be permitted. The Contractor will be held responsible for any damage due to his negligence in removing salvageable materials, and a sum, fixed by the Engineer as the value of the material so damaged shall be deducted from the Contractor's estimate.
2. No salvaged material shall be used in the construction of the new work, except where so provided on the plans or in the proposal, The Contractor shall not make temporary use of any materials or parts from old structures without the written permission of the Engineer, and any materials and parts so used shall be left at a designated point at the same site and in substantially the same condition in which they were removed from the old structure.
3. Structural steel, timber, or other salvable materials removed from old structures, unless otherwise specified or directed, shall be stored in a neat and presentable manner on blocking at designated locations within the right of way. Structures or portions thereof which are specified on the plans or in the proposal to be salvaged for re-erection shall be stored in separate piles.
4. Special attention is directed to handling of salvaged bridge materials in that steel superstructures and frames, unless otherwise provided, shall be match marked and dismantled in an approved workmanlike manner and removed carefully so as to avoid damage.
5. Guardrail designated for salvage shall be carefully dismantled in condition for re-erection and rail, cable, hardware, and posts stored as directed at accessible points for removal.
6. Cable shall be rolled or spooled in suitable condition for hauling.
7. Cable Guiderail designed for salvage shall be carefully dismantled in condition to be reused and cable, hardware, and posts stored as directed at accessible points for removal or as directed in the plans. Cable shall be rolled or spooled in suitable condition for hauling.

(b) Undesignated Materials.

When the plans or proposal do not provide for the salvaging of materials from existing roadway or bridge structures designated for removal, all materials from such become the property of the Contractor to be removed or disposed of by methods of his selection provided such does not conflict with other requirements of the specifications or will damage any existing work or facilities to be incorporated into the work.

(c) Disposal of Materials off the Right of Way.

Material and debris removed from the right of way shall be disposed of in a manner acceptable to the Engineer. Indiscriminate dumping of these materials on abutting property with or without the owner's consent will not be considered satisfactory disposal. The Contractor must comply with all local, State and Federal laws and ordinances pertaining to the type of material being disposed of and secure and submit written permission from the property owner for any disposal area. In addition, he shall include in the disposal plan an acceptable plan for the treatment of the area so as not to present an unsightly appearance, create a public nuisance or incur future maintenance problems for the Department.

206.05 Method of Measurement.

Each old bridge or portion thereof, each box culvert or culvert type structure, exclusive of pipe culverts to be removed and for which direct payment is to be made, will be designated on the plans by

its station number and description, and for the purpose of measurement and payment will be considered a complete and separate unit.

The quantity of plain or reinforced concrete pavement, plain or reinforced concrete base, and cement treated base removed, including overlying surface, will be measured and the surface area computed in square yards {square meters}. The quantity of other surfaces and bases removed will be measured by cross sections as unclassified excavation.

Removing concrete or stone curb, combination curb and gutter, gutter and valley gutter, including any overlying surface material, will be measured in linear feet {meters}.

Concrete sidewalk and concrete crosswalk removed as directed will be surface measured and the area computed in square yards {square meters}.

The length of culvert pipe removed will be measured in linear feet {meters}.

The quantity of pipe headwalls, manholes, inlets, and catch basins removed will be the number of separate units.

The Removal of Rubble as described on the plans will be measured as one lump sum unit.

Guardrail removed as directed will be measured in linear feet {meters} along the top of the rail in place between extreme limits of an installation.

Railway track removed will be measured in linear feet {meters} of separate two-rail track. A turnout will be measured as a separate two-rail track beginning at the point of frog. Where rails have previously been removed, removal of the remaining crossties, concrete foundation, and all remaining track appurtenances will not be measured and paid for but considered as a part of clearing and grubbing.

Cable guiderail removal will be measured in linear feet {meter} along the length of the top cable from anchor to anchor. Removal shall include all items associated with the cable guiderail system. No additional costs will be paid for removal of associated items of the cable guiderail system.

206.06 Basis of Payment.

(a) Unit Price Coverage.

When the contract contains a unit price for any pay item listed in this Section, such item will be paid for at the contract unit price, which shall include cutting, removal, excavation and subsequent backfill incident to removal, and furnishing all materials, tools, equipment, labor, and incidentals necessary to complete the work as described. It shall also include necessary and required salvage, preservation, storage on the right of way, or disposal of the materials, all as provided herein.

The unit price for removal of concrete pavement or concrete base shall include removal of any overlying surface.

Payment for removal or partial removal of old bridges at designated stations will be made at the lump sum contract price for each bridge removed or partially removed as specified.

The contract unit price for the Removal of Rubble shall be full compensation for loading, hauling and disposing of the rubble described on the plans.

Payment for removal of all box culverts and culvert type structures will be made at the lump sum contract price for each culvert which shall include removal or partial removal as specified on the plans.

Material required for backfilling structures removed, in excess of overlying material excavated in their removal, will be paid for at the contract unit price for excavation of the classification used.

(b) Payment will be made under Item No.:

206-A Removal of Old Bridge, Station _____ - per lump sum
206-B Removal of Old Box Culvert, Station _____ - per lump sum
206-C Removing ___* - per square yard {square meter}
206-D Removing ___** - per linear foot {meter}
206-E Removing ___*** - per each
206-G Removal of Rubble – per Lump Sum
* Concrete Sidewalk, Concrete Pavement, Concrete Crosswalks, Concrete Bases, etc.
** Pipe, Guardrail, Curb, Curb & Gutter, Railroad Tracks, Cable Guiderail, etc.
*** Headwalls, Inlets, etc.

SECTION 210
EXCAVATION AND EMBANKMENT

210.01 Description.

The work under this Section shall cover the excavation, hauling, disposal, or compaction of all material not being removed under some other item which is encountered within the limits of the work and is necessary for all construction in accordance with these specifications and in reasonably close conformity with the lines, grades, thickness, and typical cross sections shown on the plans or established by the Engineer. All excavation covered in this section will be classified as "Unclassified Excavation", "Muck Excavation", "Channel Excavation", or "Borrow Excavation", as described in this Section.

Attention is directed to the fact that the roadbed must be treated by one of the methods specified in Section 230, 231 or 232 before the placement of an overlying subbase, base, or paving structure will be permitted.

210.02 Materials.

(a) General.

All excavation within the right of way or easement limits will be known as Roadway and Drainage Excavation and will be classified as "Unclassified Excavation", "Muck Excavation" or "Channel Excavation". Excavation outside of the right of way or easement limits will be classified as "Borrow Excavation."

(b) Roadway and Drainage Excavation.

Soils data indicated on the plans is for estimating purposes only and the Department does not guarantee the accuracy thereof. Material designated for removal under embankment areas will be reclassified according to its condition at the time of removal.

1. Unclassified Excavation.

Unclassified Excavation shall consist of the excavation of all materials of whatever character encountered in the work, except Channel Excavation or Muck Excavation when such items are included as separate pay items in the plans or proposal.

2. Channel Excavation.

Channel Excavation shall consist of the excavation, removal, and disposition as noted or directed of all material necessary to provide inlet and outlet ditches or channels for drainage structures in accordance with plan details. However, unless specifically designated by plan details, such excavation will be classified as Unclassified Excavation.

3. Muck Excavation.

Material unsuitable for immediate reuse due to organic content, saturated to the extent it is somewhat fluid, and must be moved utilizing specialized techniques identified by the Contractor and accepted by the Engineer, will be classified as muck.

Unless explicitly authorized otherwise by the Engineer, before material is classified by the Engineer as muck, the Contractor will be required to demonstrate that the material cannot be removed by conventional methods and equipment normally used in the unclassified excavation operation. Conventional equipment includes all types of scrapers, dozers, etc. If no item for Muck Excavation is provided in the plans or proposal, such excavation will be classified as Unclassified Excavation and payment will be made as outlined in Item 210.10(a)1.

(c) Borrow Excavation.

Prior approval of all borrow sources must be given; however, this does not relieve the Contractor from the full responsibility for the quality and quantity of the material used. Materials for borrow shall be in accordance with the following:

1. Embankment.

Materials furnished for embankments above water and below subgrade shall be any stable material which can be compacted to the specified density.

2. Improved Roadbed.

Materials furnished for the improved roadbed shall be any stable material meeting the requirements of Soil Classification A-1, A-2, A-3, or A-4, as determined by AASHTO M 145, within the following limitations.

a. Materials in the A-2 or A-4 Classification shall be submitted to the Central Materials and Tests Soils Laboratory for a Resilient Modulus test. The Resilient Modulus test results will then be evaluated by the Materials and Tests Engineer to determine the suitability for use as Improved Roadbed.

b. Materials of the cherty or float gravel type which have a maximum of 50% passing the Number 8 {2.36 mm} sieve and 100% passing the 4 inch {100 mm} sieve will not be required to conform to the Soil Classification noted above.

c. Industrial waste, a residue from a manufacturing operation, may be used provided the material is taken from "cold" piles which are approved by the Materials and Tests Engineer, and the material is broken down by roadway operations or pit operations or crushing methods to allow approximately 100 percent passing the 4 inch {100 mm} sieve. However, isolated oversize particles up to a maximum diameter of 1 inch {25 mm} less than the thickness of the compacted layer may be used, provided such does not exceed 10 percent of the weight {mass} based on 1 square yard {1 m^2}, 6 inches {150 mm} deep. The weight {mass} of 1 square yard {1 m^2} will be calculated on the weight {mass} per cubic foot {cubic meter} of the material. This material shall have

a unit weight {mass} of not less than 100 pounds per cubic foot {1600 kg/m^3}, dry as determined by AASHTO T 99, Method "A" or "C", and conform to the following Composition Table:

Composition Sieve	% Passing By Weight {Mass}
4" {100 mm}	100
Liquid Limit (L.L.)	25 Max.
Plasticity Index (P.I.)	6 Max.
CBR	12 Min.

Material meeting this specification will not be required to conform to any Soil Classification noted above.

3. Underwater Backfill Material.

Material for underwater backfill shall be selected sandy material of an A-3 Classification or an approved A-1 or A-2 material of which not more than 15 percent passes the Number 200 {75 µm} sieve. A rocky material that will form a firm foundation when deposited underwater may also be acceptable.

4. Underwater Embankment Materials.

Material for underwater embankment shall be secured from quarries designated on the plans or from other approved sources, producing equally satisfactory material. The material shall consist of 1/2 cubic yard {0.5 m^3}, and smaller, size stone taken from approved natural rock formations. The material shall be free from earth or other foreign material consisting of predominantly larger size stones. Material to be used for choking or blanketing the surface of the underwater embankment shall be of sandy or fragmentary nature, such as stone spalls or screenings, float gravel, or gravel. Material that will slake or become plastic in water shall not be used as choking material or in the blanket course. NOTE: Certain materials within the roadway excavation limits may be authorized for use as improved roadbed material, underwater backfill, or underwater embankment; however, such authorization shall be in accordance with the provisions of Article 106.08.

210.03 Construction Requirements.

(a) General.

Prior to beginning excavation and embankment operations in any area, all necessary clearing and grubbing of the area shall have been performed in accordance with the provisions of Section 201, Clearing and Grubbing. Grading operations should commence as soon as possible after the beginning of the clearing and grubbing operations. Once grading operations begin, the work shall be continuous towards completing excavation and embankment unless approved otherwise in writing by the Engineer. Exposed erodible cuts and fills shall be final dressed, topsoil shall be placed, and the ground surface shall be stabilized with mulch and permanent seeding. The mulch and permanent seeding shall be placed in vertical increments not exceeding 20 feet {6 m} as the work progresses. Embankments shall be constructed with temporary earth berms to divert runoff to cut slopes or temporary pipe as the work progresses. Final grading and permanent stabilization measures shall be initiated for cut slopes by the end of the next business day of meeting the limits of vertical grading increments or upon suspension or completion of grading operations in a given area. Final grading and permanent stabilizations of embankments shall be initiated by the end of the next business day of reaching subgrade.

Special attention is directed to the requirements given in Section 665 and Sections 652 through 659 pertaining to the establishment of temporary and permanent erosion and sediment control measures.

The excavation and embankment for the work shall be constructed and maintained so as to properly drain and have reasonably smooth and uniform surfaces. The final subgrade elevation and section of both cuts and fills shall be in reasonably close conformity to that specified by the plans or directed (i.e. plus or minus 1 inch {25 mm} from the designated grade and slope elevations). No material shall be wasted without the permission of the Engineer. Excavation operations shall be so conducted that material outside of the limits of the slopes will not be disturbed.

Choice of equipment to perform the work shall be that of the Contractor. The type and number of units shall be such as to perform the excavation and embankment operations in conformity with these specifications and secure the density specified. Supplemental equipment shall be furnished as necessary to keep the work properly shaped.

When the Contractor's excavation operations encounter artifacts of historical or archeological significance, the operations shall be temporarily discontinued. When directed by the Engineer, the Contractor shall excavate the site in such a manner as to preserve the artifacts encountered and allow for their removal. Such excavation, unless otherwise provided, will be considered and paid for as extra work.

Where portions of existing pavement are to remain and join the surface of the new work, they shall be cut to a neat line with a vertical face using saws or other equipment that will not damage the retained portion of the work.

(b) Roadway Excavation.

1. General.

All intersecting roads, approaches, entrances, and driveways shall be graded and completed concurrently with the roadway grading and shall be kept passable at all times. During the grading operation, the area being graded shall be maintained reasonably smooth and well drained. Material used as directed by the Engineer for temporary surface to permit public use of the project will be paid for at the contract unit price of the materials so used. The Contractor shall maintain this temporary surface.

Cuts may be widened and the slopes varied as directed during construction, according to the stability of the material encountered and the need for embankment material; however, benching of backslopes to obtain material will not be permitted unless authorized in writing. If widening of a cut is necessary after the backslope is completed, a width sufficient to accommodate normal grading equipment will be allowed. Unauthorized excavation beyond the required slope will not be paid.

Old roadways within the Right of Way shall be obliterated as directed. Roadway obliteration will be paid for as Unclassified Excavation, unless otherwise designated on the plans.

2. Removal of Topsoil.

Topsoil within the construction limits shall be removed in the areas and to the depth as directed by the Engineer. Topsoil may include sod, but not tall vegetation or other debris, and shall be kept free from subsoil. It shall be stockpiled in approved locations with each stockpile not less than 4 feet {1.2 m} high and containing not less than 200 hundred cubic yards {150 m^3}. Each stockpile shall be shaped as necessary to permit accurate cross sections. The work of removal and stockpiling of topsoil will be paid for as Unclassified Excavation.

Temporary or permanent seeding, mulching and other erosion control measures shall be applied as directed by the Engineer and will be paid for under the appropriate items of work.

3. Selective Grading.

Certain designated zones or portions of cuts which afford the more suitable soils for roadbed construction shall be reserved as directed for use in forming the upper graded earth layer or layers for embankments or cuts, for backfilling, and for other purposes. Should it become necessary to stockpile selected material for use below the subgrade elevation of the same cut, it may be stockpiled nearby so that the excavated material can be measured for payment for the rehandling.

4. Undercutting.

a. Soil.

Unless noted otherwise on the Plans, cuts in soil shall be undercut 1 foot {300 mm} where improved roadbed is required. Undercut areas shall be further undercut if the Engineer determines that this is necessary for the removal of soft or yielding areas. The areas of increased undercutting shall be shaped to drain, backfilled with a suitable material and uniformly compacted to the density specified for embankment.

The length of a section of undercutting shall be a minimum of 25 feet {7.5 m}.

Areas where improved roadbeds are not required shall also be undercut if the Engineer determines that this is necessary for the removal of soft or yielding areas. These areas shall also be shaped to drain, backfilled with suitable material and uniformly compacted to the density specified for embankment.

All depressions in undercut sections shall be cleaned out and provisions shall be made for drainage. The depressions shall be backfilled and compacted with selected materials approved by the Engineer.

Undercutting will be measured and paid for as Unclassified Excavation.

b. Rock.

Cuts in rock shall be undercut 1 foot {300 mm} only where the rock does not extend above the subgrade across the full width of the improved roadbed.

All depressions in cuts in rock shall be cleaned out and provisions shall be made for drainage. The depressions shall be backfilled with a crushed aggregate base material meeting the requirements of Section 825 or a quarry crusher-run material suitable for the intended purpose. The backfill shall be compacted as directed by the Engineer.

There will be no direct payment for the material required to fill depressions made in rock cuts where the depressions resulted from the removal of rock.

5. Excavation and Backfill of Muck.

Excavation and backfill of muck areas shall be performed in a manner acceptable to the Engineer, that will not permit the entrapment of muck within the backfill. The backfilling of the excavated area shall follow immediately behind the excavation so that any soft material that is pushed ahead of the backfill can be removed. After muck removal, the Contractor shall allow the Engineer adequate time to take all elevations and measurements necessary for determining the volume removed.

Normally, the material used to backfill the excavated muck areas will be selected Unclassified Excavation or Borrow Excavation, Item 210-A or 210-D, as shown on the plans or directed by the Engineer. In some cases, the Engineer may direct, in writing, that Borrow Excavation (Underwater Backfill or Underwater Embankment), Item 210-E or 210-F, meeting the requirements of Subarticle 210.02(c), be used.

Backfill material placed in water shall be so deposited that its weight {mass} will displace and force any remaining muck outward and ahead of the backfill and prevent trapping of muck pockets. Back-pressure from displaced muck against the toe of the advancing backfill shall be relieved promptly by excavating the displaced muck as fast as it accumulates. Dikes ordered constructed within the right of way limits for controlling the muck will be paid for as Unclassified Excavation.

In addition to the requirements of Article 210.05 for disposal areas, where directed, dikes shall be built (without extra compensation) to keep the deposited muck within the limits of the designated areas and as soon as the surface condition of the deposited material will permit, the Contractor shall remove all visible stumps, roots, logs, and other debris from the waste pile and shall dispose of them as specified in Subarticle 201.03(e) without extra compensation. Before acceptance of the work, all parts of the waste pile shall be drained and dressed to a pleasing and reasonably uniform surface and any necessary erosion control work performed, all as directed by the Engineer.

6. Excavation of Rock.

Unless otherwise shown on the plans, the Contractor shall use the presplitting technique to split the face of the rock cut in a relatively smooth plane along the designated backslope, prior to shooting the interior portion of the cut. Presplitting shall be accomplished by drilling holes at intervals of approximately 1.5 feet {500 mm} to 3 feet {1 m} to the proper depth along the designated slope, loading and stemming such holes with an appropriate light charge of explosive and detonating all holes simultaneously. The Contractor will not be required to presplit on slopes flatter than one to one. In the event the cut is too deep for the presplitting to be done in one operation, an 18 inch {450 mm} offset will be allowed for the subsequent presplitting operations after the initial presplitting and interior blasting.

Any material outside the designated side slopes that has been loosened or shattered by blasting shall be removed to provide a reasonably smooth and uniform slope. No rock shall project more than 1 foot {300 mm} inside the designated slope. Payment will be made for over breakage and necessary backfill material for a distance not to exceed 1 foot {300 mm} outside the designated slopes or 1 foot {300 mm} below the designated elevation for undercutting; however, where presplitting is required, no over breakage on side slopes will be paid.

All over breakage in excess of the noted limits shall be removed and necessary backfill performed by the Contractor without additional compensation.

When authorized in writing, rock from roadway excavation may be used under other sections of the Specifications. In such an event, payment will be made under the appropriate Section for which the rock is so used, and as provided in Section 106 for the replacement of materials for use in the embankment.

All rock that is not required for other construction shall be placed in embankment, insofar as possible, in accordance with the provisions for embankments. Large rocks or boulders that cannot be used in embankment shall be disposed of by the Contractor.

7. Benching.

In cuts where unstable soil conditions occur, the plans may designate, or the Engineer may direct the use of benching. The benching shall be accomplished by suitable drilling and blasting equipment when so directed. This benching will be measured and paid for as Unclassified Excavation.

Benching may also be ordered to provide a more stable foundation for heavy embankment. Benching shall be accomplished by excavating horizontally along the hillside down to or into rock or other suitable undisturbed foundation material, forming a series of stepped benches. Each bench shall be in excavation for its entire width. The benches generally shall parallel contour lines. They shall be constructed at least 10 feet {3 m} wide and may be required to be wider for better support of embankment. Benching of embankment will be measured and paid for as Unclassified Excavation only if it is required to be loaded onto equipment and hauled to another location.

(c) Borrow Excavation.

All stumps, logs, brush, roots, and other debris resulting from clearing and grubbing work in borrow pits shall be removed and disposed of as specified in Subarticle 201.03(e). No separate payment will be allowed for this operation.

Material unsuitable for use in the work shall be disposed of in a satisfactory manner and the amount of such deducted or eliminated from quantities measured for pay purposes.

All borrow areas shall be bladed and left in such shape as to permit accurate measurements after excavating has been completed. The Contractor shall notify the Engineer in sufficient time before beginning excavation so that the necessary cross sections may be taken. The finished borrow areas shall be left in a condition satisfactory to the Engineer and the property owner. Attention is directed to Subarticle 106.01(b) for conditions governing local pit operations.

The selection of areas of the source for use and sequence of excavation shall be as directed by the Engineer in order that material of the best available gradation and soil characteristics may be secured.

(d) Embankment.

1. General.

Only suitable, approved materials shall be used in the work. The Engineer shall be the sole judge of the suitability of materials and may require such selection of materials as may be necessary to ensure a satisfactory embankment. Sandy or rocky materials available shall be used to the extent practical across wet areas to form a floor for supporting the required embankment.

After clearing and grubbing of the embankment areas is complete, all cavities and irregularities shall be enlarged to permit use of compaction equipment, backfilling and compacted as required. Foundation preparation shall consist of the work required to provide a stable foundation for the embankment. This may consist of undercutting and backfilling, flooring sufficient to support equipment, or other work as may be directed. Foundation preparation and compaction will be as directed by the Engineer.

Where a new roadway is to be constructed over an old one, completely remove the existing flexible and/or Portland cement concrete pavement for the entire limits of the width and depth in accordance with Section 201.

2. Embankment Formation.

Rocks, broken concrete, or other solid materials shall not be placed in embankment areas where piling is to be placed or driven.

Roadway embankment of earth material shall be placed in reasonably uniform layers not exceeding 8 inches {200 mm} (loose measurement) and, insofar as practical, the full width of the embankment section. Each layer shall be compacted as specified before the next overlying layer is placed. Care shall be taken during the compaction operations so that uniform density is obtained.

When the excavated material consists predominantly of rock fragments of such size that the material cannot be placed in layers of the thickness prescribed without crushing, pulverizing, or further breaking down of the pieces resulting from excavation methods, such material may be placed in the embankment as directed in layers not exceeding 2 feet {600 mm} in thickness. Each layer shall be leveled and smoothed with suitable leveling equipment and by distribution of spalls and finer fragments or earth. These type lifts shall not be constructed above an elevation of two

feet {600 mm} below the finished subgrade. The balance of the embankment shall be composed of suitable material (no material larger than 4 inches {100 mm}) smoothed and placed in layers not exceeding 8 inches {200 mm} in loose thickness and compacted as specified for embankments.

Placing of large stones, up to two-thirds the remaining embankment height at the point of placement, will be allowed provided they are spaced so as to permit free access of proper equipment to compact the intervening fill in normal layers. Other large stones may be placed on fill slopes as directed.

When new embankment is to be placed against existing embankments, or when embankment is built one-half width at a time and slopes are steeper than 4:1 {1:4} when measured at right angles to the embankment, the old embankment shall be continuously benched and the new work brought up in layers. Benching shall be of sufficient width to permit operations of placing and compacting equipment, but in no case less than 6 feet {2 m}. Material thus cut out shall be recompacted along with the new embankment material at the Contractor's expense.

Underwater backfill and underwater embankment shall be deposited in one layer for the full width of the embankment, or as directed, to the elevation designated on the plans or directed. In the formation of underwater embankment, the rock shall be fully choked with a blanket of approved choking material before placement of the remaining embankment.

Embankment over, under, and around structures (pipes, culverts, arches, bridges and like), except pipes and arches 48 inches {1200 mm} or less in diameter, shall be selected embankment material placed and compacted or tamped as noted herein in a manner and by methods that will avoid unbalanced loading, cause movement, or place undue strain on any structure. The Contractor shall be solely responsible for protecting the structures and any damage to any part of a structure due to not providing proper protection shall be cause for ordering its replacement without additional compensation.

3. Embankment Compaction.

Layers of embankment shall be compacted as specified in Subarticle 306.03(b). It will be the Contractor's responsibility to maintain the moisture content necessary to satisfactorily compact the material. Compaction in a semi-dry condition will not be permitted.

Where improved roadbed design is specified, the layers up to the bottom of the improved roadbed shall be compacted as noted above and finished true to required line, grade, and cross section. The improved roadbed layers shall then be constructed as provided in Article 230.03.

Where improved roadbed design is not specified, the embankment layers shall be continued up to subgrade elevation with the same compaction requirement as noted herein. Just before placing a subbase or other material on this graded earth roadbed, the top 6 inches {150 mm} shall be reconstructed as provided in Subarticle 230.03(c) of these specifications.

No compaction or density test will be required for underwater embankment or underwater backfill.

210.04 Use of Materials.

All suitable materials removed from the Roadway Excavation shall be used, insofar as practicable, in the formation of the embankment, roadbed, base layers, shoulders, slopes, bedding, and backfill for culverts, and for such other purposes and places as directed. Suitable materials shall be defined as those suitable for any of the above listed uses.

No excavated material shall be wasted unless permitted in writing by the Engineer but shall be used uniformly to widen embankments, to adjust grades, to flatten slopes, or shall be deposited in such places and for such other purposes as may be directed. Such material shall be handled as follows:

1. Suitable Material.

Suitable material shall be used at the time of excavation for any of the purposes outlined herein in this Article. It is not intended to stockpile suitable material unless ordered in writing by the Engineer. Payment for second handling will be made only when reused from stockpiles previously ordered by the Engineer.

2. Unsuitable Material.

Unsuitable material that cannot be used at the time of excavation may, at the option of the Contractor, be temporarily stockpiled within the right-of-way, or the Contractor may make written requests for disposal as waste in an approved area on or off the right-of-way. Payment for the second handling of stockpiled unsuitable material will be made only when ordered in writing for use by the Engineer for a specific pay item. The remainder of the stockpiled material may be used to widen embankments, flatten slopes, etc. as allowed by

the Engineer, with no payment for the second handling, or shall otherwise be disposed of off the right-of-way with no payment for the second handling.

No payment will be made for the second handling of unsuitable material deposited outside the construction limits at the time of excavation and later spread onto a fill slope, etc. by use of a dozer or similar equipment.

3. Channel Excavation.

Channel Excavation shall be used to fill old channels, in the construction of embankments, the flattening of slopes, or shall be disposed of as approved by the Engineer. If permitted by the Engineer, waste channel excavation may be spread in uniform layers, neatly leveled, shaped, and grassed with sufficient openings provided to permit surface drainage of adjacent lands; however, in no case will waste material piles be permitted to remain within 10 feet {3 m} of the edge of any ditch, channel, or cut. No payment will be made for any necessary rehandling of Channel Excavation material unless ordered for use by the Engineer from stockpiles for a specific pay item.

210.05 Disposal Areas for Surplus Material.

If no disposal areas are shown on the plans, the Contractor shall provide at his own expense disposal areas and submit along with the permission of the property owner a plan for treatment of the area which is acceptable to the Engineer. Said plans shall provide for dressing, grassing, or other treatment to avoid unsightly appearance and not create a public nuisance or incur future maintenance problems.

Disposal areas will not, in general, require clearing and grubbing or compaction of the waste pile; however, if clearing and grubbing or compaction is required, such will be designated by plan details or in the proposal.

Reference is made to Item (f) of paragraph 3 of Article 107.13 concerning handling of waste material and treatment of areas.

210.06 Finishing and Dressing.

All the completed work shall be dressed and maintained substantially to the lines, grades, and cross sections shown on the plans or as directed by the Engineer. Slopes shall be shaped, rounded, finished, or trimmed in a neat workmanlike manner to conform to the slope lines shown on the plans or as modified by the Engineer. Care shall be exercised so that no material be loosened beyond the required slopes.

Compensation for all such finishing and dressing shall be included in the contract unit prices and no direct payment will be made for this work.

210.07 Erosion Control.

The Contractor shall incorporate into the work all permanent erosion control features provided in the contract at the earliest practical date. In addition, temporary erosion control features may be ordered by the Engineer to facilitate protection until the permanent control features can be installed. Stockpiles shall be located away from stormwater conveyance and outside areas having potential to flood. Stockpiles shall have a sediment barrier installed along all downgradient areas. Temporary and permanent erosion control features shall be initiated by the end of the next business day, following the day when construction activities will temporarily cease for more than 7 days or permanently cease. Particular attention is directed to Section 665 and Article 107.21 of these Specifications.

210.08 Blank.

210.09 Method of Measurement.

(a) General.

Measurement for all accepted Excavation, except for Borrow Excavation for Underwater Embankment, will be either by the cubic yard {cubic meter} of the material in its original position computed from cross sections by the average end area method or per ton {metric ton} as specified by the unit measure of the pay item.

Measurement for Borrow Excavation for Underwater Embankment will be either by the ton {metric ton} or by the cubic yard {cubic meter}, loose volume, of the material in the hauling vehicle at the point of use as specified by the unit measure of the pay item.

Embankment will not be measured for payment. All of the operations required for embankment formation described herein shall be considered necessary work incidental to and for which compensation is included in the contract unit prices for the pay items of the materials composing the embankment.

Muck excavation as described in Subarticle 210.03(b) will require the use of the following modified cross section and average end area method. The volume will be measured between theoretical vertical side slopes, a station or substation at a time, immediately after completion of muck excavation and before backfill is placed. No measurement or allowance will be made for necessary excavation of material for sloughing, subsidence, flattening sides, slumps, or rehandling materials or for shaping and dressing disposal areas. The sloughing, subsidence, flattening, or slump of side slopes in muck will not be classed as slides.

(b) Measurement Limitations.

Measurement of pay quantities will not include any excavated material used for purposes other than those designated except as provided under Article 106.08. Where material has been excavated beyond the designated slope line and wasted, the unauthorized wasted material will be measured and deducted from the excavation quantities. Any material excavated prior to the staking out and cross sectioning of the borrow sources by the Engineer, or in excess of that ordered for the work, will not be included in the quantity measured for payment. If the Contractor places more borrow than is necessary, thereby causing a waste of excavation, the amount of such waste will be deducted from the borrow excavation as measured in the borrow source. When a borrow area is adjacent to the right of way, the dividing line between unclassified excavation and borrow excavation shall be either a vertical plane through the right of way line or the proposed backslope as shown on the plans, whichever is most economically advantageous to the State.

210.10 Basis of Payment.

(a) Unit Price Coverage.

1. Roadway and Drainage Excavation.

The accepted volume of Unclassified Excavation - Item No. 210-A, Channel Excavation - Item 210-B, and Muck Excavation - Item No. 210-C, when provided in the plans or proposal, measured as provided above, will be paid for at the contract unit prices bid for these items which shall be payment in full for: excavation; disposal of surplus and unsuitable materials (see Articles 210.04 and 210.05); hauling; formation and compaction of embankment; preparation and completion of subgrade and shoulders except when this work is included in other pay items; the completion of all cuts, embankments, and channel excavation to conform to the lines, grades, and cross section indicated on the plans or otherwise directed; and the completion of the roadway together with its appurtenances of intersecting roads, streets, driveways, approaches, temporary drainage facilities, and other related incidental work for which the proposal contains no contract unit prices. The said contract unit prices for the excavation item shall be payment in full for all equipment, tools, labor, and incidentals necessary to complete the work.

If no contract items for Channel Excavation and/or Muck Excavation are provided, such work will be paid for as Unclassified Excavation.

Exceptions to the above will be made in the event of the following:

a. If a backslope already completed and dressed is destroyed by a slide, or if the Engineer orders additional material taken from a completed and dressed backslope, any redressing required will be paid for as provided in Article 104.03.
b. If a slide occurs after completion of the subgrade to line and grade or during subsequent work in the immediate area and is of such nature and extent that the Engineer, in order to avoid damage to the previous work, directs its removal, and such requires equipment other than equipment normal to the project, an adjustment in price may be made. However, in no case shall such an increase exceed 25 percent of the unclassified excavation contract unit price.
c. If no item for Muck Excavation is provided in the plans or proposal, such excavation will be classified as Unclassified Excavation and payment will be made at two times the unit bid price for Unclassified Excavation.

2. Borrow Excavation.

The accepted volume of Borrow material designated under Items 210-D, 210-E and 210-F, measured as noted above, will be paid for at the contract unit price bid for the items, which shall be payment in full for the royalty and other expenses incidental to procurement, construction and maintenance of haul roads, clearing and grubbing, stripping, excavating, loading, hauling, source moves, dumping, spreading, and also for formation and compaction of embankment, trimming slopes, disposing of surplus materials, preparation and completion of subgrade, shoulders, and

intersecting roadways and furnishing of all equipment, labor and incidentals necessary to complete the work. This pay item also includes any necessary work as may be required by the Engineer or owner in the final dressing of the pit, including grassing or other landscape work.

(b) Blank.

(c) Payment will be made under Item No.:

210-A Unclassified Excavation - per cubic yard {cubic meter}
210-B Channel Excavation - per cubic yard {cubic meter}
210-C Muck Excavation - per cubic yard {cubic meter}
210-D Borrow Excavation - per cubic yard {cubic meter}
210-E Borrow Excavation(Underwater *) - per cubic yard {cubic meter}
210-F Borrow Excavation(Underwater *) - per ton {metric ton}
* Specify either Backfill or Embankment.

SECTION 250
REMOVAL OF UNDERGROUND STORAGE TANKS AND CONTAMINATED SOIL

250.01 Description.

This Section shall cover the removal and disposal of underground storage tanks for petroleum-based hydrocarbons and the removal and disposal of contaminated soil. The term underground storage tank (UST) includes the UST and all components (pump lines, vent lines, distribution lines, etc.) of the tank. This Section shall also cover the removal and disposal of the contents of the UST and the backfilling of the areas of removal.

The approximate extent of the known contamination will be shown on the plans. The actual limits of contamination will be determined in the field with verification sampling at the time of UST removal.

The treatment of groundwater after the removal of the USTs will be done under a separate contract.

250.02 Materials.

Material requirements are not given for the work required under this Section. The furnishing and placement of materials is covered under other Sections.

250.03 Construction Requirements.

(a) Regulatory Requirements and Permits.

All work shall be in conformance with the rules and regulations of the Alabama Department of Environmental Management (ADEM), the Environmental Protection Agency (EPA), and the Occupational Safety and Health Administration (OSHA).

For the purpose of conducting work for the Department, the term "Generator" shall be defined as any person who utilizes any process that results in the production of solid waste. The Contractor, not the Engineer, will be responsible for signing all regulatory documentation as the "Generator".

If contaminated material is transported to or through another state, work performed in that state shall be in conformance with any applicable regulatory requirements in the state involved.

The Contractor shall obtain all permits that may be required for the handling, hauling and disposal of the petroleum hydrocarbon liquids and sludge and contaminated soil.

(b) Contractor's Notification of Schedule to Remove USTs.

The Contractor shall notify ADEM at least 30 calendar days before beginning the excavation work to remove a UST. The Contractor shall also provide the Engineer with a copy of the notification and any acknowledgements of the notification returned by ADEM. At least 7 calendar days in advance of excavation and removal, the contractor shall notify the Engineer to ensure that appropriate personnel are on site to obtain samples and data as necessary for the verification testing. The Department will do all site assessment and verification testing.

(c) Removal and Disposal of UST and Excavation Pit Contents.

The Contractor shall remove liquids and sludges from a UST by pumping these materials out of the UST before it is removed from the ground. USTs may contain different types of petroleum hydrocarbons (gasoline, diesel, sludge, oil, etc.). Small amounts of liquids and sludges that cannot be pumped from a UST and cannot be removed from the appurtenances to the UST (distribution lines, pump lines, etc.) shall be collected after the removal of the UST. Leakage from the UST onto the surrounding soil shall be avoided by properly pumping the contents of the UST into permitted transport vehicles. Any liquids or sludges associated with the UST system that are present or released into the excavated pit shall be removed and disposed.

The liquids and sludges shall be removed in accordance with the requirements given in the National Fire Protection Association Flammable and Combustible Liquids Code (NFPA-30) and ADEM requirements.

The Contractor shall dispose the liquids, sludges and other materials removed from the USTs and the materials collected from the appurtenances to the USTs. The Contractor shall furnish the Engineer with a copy of the documentation of the disposal (disposal receipts, manifests, weight tickets, etc.).

(d) Excavation of Potentially Contaminated Soil.

The Contractor shall excavate the potentially contaminated soil to the extent designated by the Engineer. The Contractor shall furnish, install and maintain all hazard warning markings and devices at the areas of excavation that may be required by regulation.

The soil shall be placed in separate loads for testing. A typical load for testing shall not be greater than 20 cubic yards {15 cubic meters} but may be a larger or smaller load that the Engineer designates as being acceptable for testing.

Loads shall be kept separate to maintain the integrity of the testing and disposal. Loads shall be isolated by plastic sheeting (minimum thickness 6 mils) or by being placed in holding bins or other containers to prevent further contamination. The stockpiled material shall be placed so that soils are not released into the surrounding environment by erosion.

After the results from the verification testing have been obtained, the Engineer will inform the Contractor of what should be done with the soil. If the Engineer determines that the level of contamination does not warrant the disposal of the soil as contaminated soil, it shall be incorporated into the earthwork or shall be disposed by the Contractor in accordance with the requirements given in Section 210.

Contaminated soil shall be kept separate from soil that is not contaminated.

(e) Removal and Disposal of USTs.

USTs shall be removed after the liquids and sludges have been removed from the USTs and the appurtenances to the USTs. USTs and connections shall be completely empty prior to disposal. All lines (product lines, vent lines, etc.), connections and other appurtenances shall be removed. The method of UST disposal shall be submitted to the Engineer for approval. The Contractor shall furnish the Engineer with a copy of the documentation of the disposal of the UST and appurtenances (disposal receipts, manifests, weight tickets, etc.).

(f) Disposal of Contaminated Soil.

The Contractor shall deliver the contaminated soil to a disposal site (landfill, incinerator, etc.) that meets all regulatory requirements for the disposal of the contaminated soil. Documentation (receipts, manifests, mass tickets, etc.) of the delivery shall be provided to the Engineer.

Contaminated soil shall not be treated on site prior to disposal and shall not be removed to an alternate site for remediation prior to disposal.

(g) Backfill.

Backfilling the excavated areas will not be permitted until authorized by the Engineer. Backfill within the limits of the roadway shall be in conformance with the requirements given in Section 210. All other backfill shall be placed, tamped and compacted to the consistency of the surrounding material. Backfill shall be compactable soil of an acceptable quality.

250.04 Method of Measurement.

(a) Disposal of Hydrocarbon Contaminated Soil.

The disposal of hydrocarbon contaminated soil will be measured by the cubic yard {cubic meter}.

Soil that is not disposed of as contaminated soil and is incorporated into the earthwork or disposed by the Contractor will be measured by the cubic yard {cubic meter}.

(b) Underground Storage Tank Removal.

The removal of a tank will be measured per each tank removed.

(c) Removal and Disposal of Tank Contents.

The quantity of tank contents removed and disposed will be measured in gallons {liters} as metered or computed from field measurements. This Pay Item does not include liquids generated during the tank cleaning process.

250.05 Basis of Payment.

(a) Unit Price Coverage.

1. Disposal of Hydrocarbon Contaminated Soil.

   The contract unit price for the disposal of hydrocarbon contaminated soil shall be full compensation for the excavation and handling of the soil, securing the site, hauling, disposal, and for all equipment, tools, labor and incidentals necessary to complete the work. The contract unit price shall also be full compensation for all expenses required for compliance with rules, statutes, laws and regulations that cover the removal and disposal of the contaminated soil.

   The contract unit price for the disposal of the hydrocarbon contaminated soil shall also be full compensation for incorporating uncontaminated soil into the earthwork or disposal of uncontaminated soil. The quantity of uncontaminated soil will be reduced by 75 % to allow payment to be made at the same price as the disposal of hydrocarbon contaminated soil.

   Backfilling of excavated areas will be covered under other items of work.

2. Underground Storage Tank Removal.

   The contract unit price for the removal of an underground storage tank shall be payment in full for all materials, equipment, tools, labor and incidentals necessary for the removal and disposal of the tank and appurtenances. The contract price shall include cleaning the tank, and all appurtenances.

3. Removal and Disposal of Tank Contents.

   The contract unit price for the removal and disposal of tank contents shall be full compensation for all equipment, tools, labor and incidentals necessary for removing and disposing the tank contents.

(b) Payment will be made under Item No.:

250-B Disposal of Hydrocarbon Contaminated Soil (SPECIALTY ITEM) - per cubic yard {cubic meter}
250-C Underground Storage Tank Removal (SPECIALTY ITEM) - per each
250-N Removing and Disposing Tank Contents (*) (SPECIALTY ITEM) - per gallon {liter}=*=
Specify “Gasoline”, “Diesel”, “Sludge”, “Oil”, etc., if required.

SECTION 521
STEEL BRIDGE COATING

521.01 Description.

This Section shall cover the work of applying coatings to steel for new construction and to existing bridges in the field for the protection of structural steel portions of bridges.

Special requirements are given for the removal of coatings on existing bridges and for the disposal of the removed coating material.

The requirements for coating are applicable regardless of whether or not payment for the coating is included in the payment for the steel (usually new construction) or is a separate payment for the field application of the coating on an existing bridge.

521.02 Materials.

Coating materials shall conform to the requirements given in Section 855, "Coatings, Paints, Enamels, and Varnishes for Metal and Wood Structures". Requirements for coating are also given in Section 836, "Structural Steel, Fasteners and Miscellaneous Metals".

There are three basic types of coating systems. These systems are:

- System 1, zinc primer with various types (acrylic, epoxy, urethane) of intermediate and top coats;
- System 2, acrylic primer, intermediate and top coats;
- System 3, epoxy mastic.

The required dry film thickness and the required color of each coat are given in Article 855.05.

521.03 Selection of Coating System.

The type of required coating system will be shown on the plans or designated elsewhere in the contract. The coating system proposed for application shall be selected from the list of approved coating components if a proprietary coating system is not shown on the plans.

The Contractor shall submit a written notification of the following:

- the name and address of the supplier of the coating system;
- the product names of each coat proposed for application;
- the supplier number from the list of approved coating systems.

If the coating is proposed for application on existing structures the Contractor shall give this written notification to the Project Manager at least 14 calendar days prior to the beginning of the application of the coating.

If the coating system is proposed for new construction the Contractor shall give this written notice to the Project Manager and forward a copy of the notification to the Bridge Engineer prior to, or with the first submittal of the structural steel shop drawings.

521.04 Blast Cleaning, Mechanical Cleaning and Surface Roughness.

(a) Potential Hazardous Waste from Cleaning Existing Steel Surfaces.

Historically the results of testing performed on existing coatings shows that there is a strong likelihood that the blast waste will be hazardous due to the presence of the heavy metals lead and/or chromium. Existing coatings may be tested, prior to bidding, for potential hazardous materials. The results of this testing, should it be performed, will be provided to potential bidders by plan notes or other supplementary documentation that will be included in the bidding proposal. All cleaning waste (blast waste, mechanical cleaning waste, etc.) shall be handled as hazardous waste until appropriate testing (Toxicity Characteristic Leaching Procedure TCLP, EPA Test Method 1311 test given in the EPA manual SW-846) has been conducted and a determination has been made to the contrary.

The Contractor shall be fully responsible for all expenses that may be due to the handling and disposal of hazardous waste that is generated from cleaning existing steel bridge surfaces.

(b) Blast Cleaning Surface Preparation for Coating Systems 1 and 2.

Unless noted otherwise on the plans, the surfaces that are to be coated with Coating System 1 shall be blast cleaned to conform to the requirements given in Steel Structures Painting Council Specification SSPC-SP 10 "Near-White Blast Cleaning".

Unless noted otherwise on the plans, the surfaces that are to be coated with coating system System 2 shall be blast cleaned to conform to the requirements given in Steel Structures Painting Council Specification SSPC-SP 6 "Commercial Blast Cleaning".

(c) Mechanical Cleaning Surface Preparation for Coating System 3.

Unless noted otherwise on the plans, the surfaces that are to be recoated with Coating System 3 shall be prepared by SSPC-SP 2 “Hand Tool Cleaning” or SSPC-SP 3 “Power Tool Cleaning”, SSPC-SP 12 “Surface Preparation by High- and Ultrahigh-Pressure Water Jetting”, or other means to remove loose paint and loose rust prior to recoating.

(d) Required Surface Roughness after Blast Cleaning.

After blast cleaning, the anchor pattern shall be from 25 μm to 75 μm deep in a dense and uniform pattern of depressions and ridges, as determined by use of a press-o-film type tape and a spring micrometer or equal as approved by the Department, for all coating systems. The press-o-film type tape and a spring micrometer shall be provided by the Contractor.

521.05 Containment System for Removal of Coating from Existing Bridge.

The preparation (blasting and final cleaning) of surfaces for the application of System 1 and System 2 coatings on an existing bridge shall be done in a containment system, unless designated otherwise on the plans. The preparation of surfaces for the application of System 3 coatings will not require a containment system unless designated otherwise on the plans.

The containment system shall consist of vertical (and horizontal if necessary) screening with a collection/recovery area in position at all times that coating removal work is in progress. Screening material shall consist of approved material suitably stiffened by bracing to form an assembly with sufficient strength to withstand winds and adverse weather conditions normally encountered during the season in which the work is performed. The screening shall extend the full vertical distance between bridge steel and collection area. The containment system shall not cause a hazard to the traveling public.

The containment system shall be designed to have air-moving equipment capable of:

- maintaining OSHA acceptable airborne concentrations of hazardous material;
- providing adequate worker visibility;
- preventing any spent material or dust from leaving the enclosure and;
- collecting the material for disposal.

Air quality will be visually monitored by the Engineer. Any dust outside the containment structure shall be justification for suspension of the work.

521.06 Collection and Disposal of Coating Material Waste from Existing Bridge.

Coating material and other debris removed from an existing bridge shall be collected by the Contractor in the containment system. This material shall be stored in approved containers for subsequent transportation to an approved disposal site. The Contractor shall store and dispose of contaminated debris in accordance with the requirements of the ADEM. Any testing required by the ADEM to be performed on the collected waste shall be the responsibility of the Contractor.

The Contractor shall collect representative samples of the waste, as generated, in a storage vessel. A composite sample shall be collected for each 20 cubic yards {15 m^3} generated per bridge site. Adjacent

dual bridges will be considered as one site, unless noted otherwise on the plans. A composite sample shall be made by taking several small samples from random locations in the collected waste. The Contractor shall have the sample tested for hazardous materials using the Toxic Constituents Leaching Procedure (TCLP) as specified in EPA manual SW-846. Test results shall be submitted to the Engineer within 7 days from the date that the results are received by the Contractor.

Waste which exceeds any regulatory threshold for a characteristic waste shall be handled as a hazardous waste. The Contractor shall be responsible for complying with all hazardous waste rules and regulations of the EPA and the ADEM including, but not limited to, such things as generator I.D. numbers, labeling, manifesting, etc. The waste shall not be stored for over 90 days. It must be transported only by a permitted transporter, and must be disposed of in an authorized hazardous waste facility. No treatment shall be conducted at the coating removal site. Any land ban certifications shall be the responsibility of the Contractor. The Contractor, acting on behalf of the Department, is the generator of the waste and shall sign any manifest or similar documents as such. The Contractor shall secure the approval of the Engineer for the transporter and the disposal facility at least five days prior to initiation of a shipment of waste. All personnel involved in the waste generation or handling shall be trained in accordance with EPA/OSHA directives. The Contractor shall reimburse the Department for all costs that may be incurred by the Department due to the failure of the Contractor in complying with all regulatory requirements for the containment, collection, storage and disposal of the blast waste.

Waste which does not exceed the regulatory threshold for a characteristic waste shall be handled as an industrial solid waste. It shall be stored in accordance with the ADEM (Land Division-Solid Waste Branch) directives. Disposal shall be in accordance with the ADEM guidelines at an ADEM approved facility. The Contractor shall secure, in writing, the ADEM authorization for said disposal. The Engineer shall be given a copy of the authorization upon receipt by the Contractor.

If contaminated material is transported to or through another state, work performed in that state shall be in conformance with any applicable regulatory agencies in the state involved.

Copies of all required regulatory documentation, including ADEM Form 8700-12, shall be delivered to the Engineer at the time that they are submitted to the regulatory agencies. The work will not be accepted until all required notifications and permit terminations have been completed and copies of the Receipt of Termination for all permits, including the ADEM Form 8700-12, provided to the Engineer.

521.07 Surface Preparation Plan Submittal for the Removal of Existing Coatings.

Prior to beginning the work of removing coatings from existing bridges, the Contractor shall submit a Surface Preparation Plan for review and distribution by the Construction Engineer. Copies of the plan shall be submitted as Working Drawings in accordance with the requirements given in Section 105. The Contractor will not be required to have the plan stamped and signed by a Licensed Professional Engineer unless the preparation of details shown on the plan (for example temporary structural supports) is addressed in Alabama law regulating the practice of engineering. The plan shall be created to comply with all rules and regulations of EPA, ADEM, OSHA and any other agency that has regulatory authority and shall include:

- the cleaning methods and products proposed for removal of paint with product manufacturer documentation of the effectiveness of the cleaning methods and products in producing non hazardous blast waste;
- a work phase diagram describing how the debris shall be contained while blasting and coating operations are conducted;
- a detailed drawing and/or description of the enclosure listing the type of covering, details of the covering support materials, details of the connections to the bridge structure;
- methods and equipment proposed for collecting the blast debris;
- description of the containers and the location proposed for storing the blast debris;
- drawing at an appropriate scale to show the location of the storage of the blast waste in relation to the location of the work;
- copies of the submittal of ADEM’s Form 8700-12. (If TCLP testing of blast waste proves that it is non-hazardous the Contractor may request release from ADEM’s Form 8700-12 with approval of the Engineer.);
- description of the details, location and procedures for disposal of the blast debris.

521.08 Final Cleaning of Blast Cleaned Surfaces.

Blast cleaned surfaces shall be cleaned immediately prior to the application of the primer coat. All weld spatter, flux, slag, fume, and other objectionable deposits shall be removed prior to blast cleaning.

The area of the welds shall be neutralized with suitable chemicals if this is required for the successful application of the primer. All areas repaired after blasting by welding, grinding or any other method shall be reblasted if deemed necessary by the Engineer.

Before the application of the primer to the blasted surfaces, the surfaces shall be brushed with clean bristle brushes, blown with compressed air or vacuumed to remove all abrasives and other loose material from the surfaces. This cleaning shall also be done to remove abrasive deposits from cracks, crevices, corners, and pockets. Oil and grease shall be removed from blast surfaces by means of a suitable solvent.

Potentially hazardous materials collected from the final cleaning on existing bridges shall be collected for proper regulatory disposal.

521.09 Required Location for Application of Coats.

Unless noted otherwise on the plans, the primer coat for new construction shall be applied in the fabrication shop. All other coats for new and existing construction shall be applied in the field after the installation of the steel has been completed.

521.10 Compliance with Coating Manufacturer's Requirements.

All coats shall be installed in accordance with the manufacturer's instructions and precautions for use.

If requested by the Engineer, the Contractor shall have a representative of the coating manufacturer present at the initial application of the coats. The representative shall remain for a period of time necessary to ensure that the coatings are being applied satisfactorily and curing properly.

521.11 Equipment for the Application of the Coatings.

Coats shall be applied by spray. Rollers and brushes may be used only on flat surfaces for stripe coating and small coating repairs as directed by the Engineer. Coats shall be applied uniformly to ensure complete coverage and to give the required thickness on all surfaces.

Equipment for spraying shall produce satisfactory results without the use of thinner if the use of a thinner is not allowed by the coating manufacturer. If drift of the spray away from the surface to be coated becomes a problem, the Engineer may require spraying to be suspended until conditions are favorable. Spray equipment shall include traps or separators to remove oil and water from the compressed air. The spray equipment shall be kept clean so that dirt, dried coating material and other foreign materials are not deposited in the coat film.

Subsequent coats shall not be applied over a previously applied coat prior to the time that is specified by the manufacturer for the applied coat to cure or dry.

521.12 Time of Application of Primer Coat after Final Cleaning.

The primer coat shall be applied at the time recommended by the coating manufacturer, if that time is less than 24 hours after final cleaning. The primer coat shall always be applied within 24 hours after final cleaning. Under no circumstances shall the steel be permitted to rust before coating, regardless of the time elapsed. Rust shall be cleaned by blasting or other methods approved by the Engineer.

521.13 Quality Control for Application of Coatings in the Fabricator's Shop.

If requested by the Engineer, the fabricator shall have a representative of the coating manufacture present at the initial application of the coating. The representative shall remain for a period of time necessary to ensure that the coatings are being applied satisfactorily and curing properly.

The fabricator shall keep a daily record of each coating operation. The record shall be kept more frequently if the materials or coating operations change during the coating process. The coating records shall be kept on a form furnished by the fabricator that is acceptable to the representative of ALDOT.

Each coating record shall contain the ambient temperature, steel temperature, relative humidity, dewpoint, average anchor profile, coating system number, batch number, time and date blasted, time and date coated and all other information that is pertinent to the application of the coating.

After each required coat of paint has cured, the average coating thickness of each member shall be recorded. The minimum and maximum thickness as specified on the coating manufacturer’s written data shall be required. The averages shall be taken from three evenly divided sections over the length and on each side of the member under examination. The averaging shall be based on SSPC-PA 2 guidelines.

Each coating record form shall be signed by the fabricator’s quality control supervisor. A copy of each coating record form shall be given to the ALDOT representative within five working days that coating

work was performed. A copy of the manufacturers' certifications of all batch numbers of the applied coatings shall also be submitted to the ALDOT representative with the coating record forms.

Average anchor profile of blasted steel shall be checked using press-o-film type tape. The actual press-o-film type tape used for the measurement of the anchor profile shall be included with the copy of the coating record. Where materials other than beams and girders have been accumulated during a single shift or production run, the anchor profile of randomly selected members shall be checked.

Coatings shall not be applied until the surface to be coated has been inspected and approved by the fabricator's quality control inspector or coatings shop supervisor after final cleaning. This prior approval also applies to additional coats that may be required.

521.14 Worker Protection.

The Contractor shall comply with all requirements of the Occupational Safety and Health Administration (OSHA) and other applicable regulatory agencies with regard to exposure to hazardous materials in construction.

The Contractor shall be responsible for the training of all workers exposed to hazardous materials. The workers shall be informed of the hazards of exposure to these materials and shall be trained in the precautions to take when performing the work.

The Contractor shall provide respiratory protection and protective clothing to all workers and persons entering an area where there is the possibility of exposure to hazardous materials. Protective clothing and equipment shall be approved by OSHA or other applicable regulatory agencies.

521.15 Ambient Conditions for Surface Preparation and Coating Application.

(a) Ambient Conditions for Surface Preparation.

Final surface preparation shall not be performed on steel surfaces which may come into contact with rain, fog, snow, or dew prior to application of the coating. Final surface preparation operations, specifically meaning the 24 hour period within actual coating of steel surfaces, shall not take place when the steel surface is within 5 ˚F {3 ˚C} of the dew point or when the steel surface is below 32 ˚F {0 ˚C}. The equipment to check the dew point, humidity, and steel temperature shall be furnished by the Contractor.

Surface preconditioning such as SSPC-SP 7 "Brush-Off Blast Cleaning" is allowable when dew point, steel surface temperatures or other conditions are outside of allowable ranges as long as final surface preparation requirements specifically regarding SSPC-SP6 and SSPC-SP10 are completed within the 24 hour period of coating steel surfaces.

(b) Ambient Conditions for Coating Application.

Coating operations shall take place only when the surrounding air temperature or temperature of the steel is above 40 ˚F {5 ˚C} and not expected to drop to or below 32 ˚F {0 ˚C} prior to drying of the coating. Coatings shall not be applied to damp or frozen steel surfaces. Coatings shall not be applied when the steel surface is within 5 ˚F {3 ˚C} of the dew point or at a relative humidity above 85% unless the conditions of application recommended by the coating manufacturer are different and are allowed by the Engineer. Coatings shall not be applied during rain, snow, or fog conditions or when it is likely that moisture in the form of rain, fog, snow, or dew will contact coated surfaces which have not cured to water resistance.

521.16 Additional Requirements for Applying Primer Coat in the Shop.

(a) Exposed Surfaces.

Unless designated otherwise on the plans or in these specifications, all steel surfaces that will be exposed, with the exception of weathering steel, shall be coated in the shop with a primer coat.

Limited painting of weathering steel is required. Only the exposed, non-contact surfaces of weathering steel within a distance from an open joint or finger tooth joint of 1.5 times the depth of the girder (depth at the bearing) shall be painted unless noted otherwise on the plans.

(b) Contact and Inaccessible Surfaces.

Shop contact (faying) surfaces shall not be coated. Surfaces that are not in contact, but will be inaccessible after assembly or erection, shall be coated with all required coats before assembly or erection except for bolted field splice surfaces.

All areas required to be painted that are not readily accessible to spray painting operations shall have primer applied by other means. These areas include, but shall not be limited to, all holes in fabricated items and all clips of stiffeners or gusset plates.

All seams of fabricated items that will not be sealed by welding shall receive a brush applied stripe coat of inorganic zinc prior to the application of the primer coat. The inorganic zinc coating shall be the same as that used for the primer coat. Additional touch up of the stripe coat will be required, if necessary, before final approval is given to the primer coat.

(c) Machined Surfaces and Surfaces at future Field Welds.

Primer coats shall not be applied in the shop to machined surface finishes noted in Article 836.50.

(d) Surfaces of Expansion Dams.

All surfaces of expansion dams shall be coated with primer to the maximum thickness recommended by the coating manufacturer.

(e) Coating with Inorganic Zinc Primer.

When an inorganic zinc primer coat is required, the area of the girder (web and flange), the splice plates, filler plates, gusset plates for all diaphragms, crossframes and lateral bracing, top of the top flange of steel members supporting concrete slabs, and the edges of the top flange shall be coated with the inorganic zinc primer in the shop. The zinc primer shall have been tested for the determination of the slip coefficient as described in Article 855.03.

When an inorganic zinc primer coat is required, the intermediate coat shall not be applied until the primer coat has cured. The Contractor shall ensure that this does not occur by testing the primer coat curing by means of a method recommended by the coating manufacturer.

All overspray, loose or foreign, that would inhibit successful bonding of a subsequent topcoat shall be removed by a method approved by the manufacturer of the product.

(f) Protection of the Primer Coat in the Shop.

The freshly coated steel shall not be handled or moved, except when unavoidable, until the primer coat is dry. All handling shall be performed using methods that will prevent the primer coat from being damaged. Storing shall be done in such a manner that the coating will not be removed or covered with dust, dirt, or other foreign material. In the case that debris does settle and harden on the coated surfaces during periods of extended shop storage, power washing shall be required before materials are staged for delivery. Any surfaces which require cleaning shall be restored to the original acceptable conditions prior to delivery to the project site.

Loading, supporting and securing the steel for shipping shall be done in a manner to prevent damage the primer coating during loading and shipping. Nylon tie-downs, or other materials that will not damage the coating shall be used to secure the steel members during shipment.

(g) Erection Marks.

Erection marks corresponding to those of the erection diagram submitted by the Contractor shall be plainly marked on primer coated surfaces.

521.17 Requirements for Applying Additional Coats over a Shop Primer Coat.

(a) Cleaning Surfaces after Erection.

All debris shall be cleaned from the primed and bare surfaces before the application of additional coats. The Contractor shall use cleaning methods and materials that will not damage the primer coat. Oil and grease shall be removed by the use of a suitable solvent. Care shall be taken not to damage an underlying coat; however, if damage occurs, the underlying coat or coats shall be immediately repaired. On welded work all slag, flux, and spatter shall be removed prior to coating.

(b) Coating Surfaces After Erection.

Immediately after the erection of materials (all connections complete), all bolted connections such as girder connection plates, diaphragm connection plates, field splice plates, galvanized bolts, nuts, washers, and other portions of the structure (except portions in contact with the concrete) which have received a shop applied primer coat and all completed bolt assembly installations shall be cleaned.

All surfaces that have been scraped, chipped, or damaged during shipping and erection and all surfaces of the prime coat that have deteriorated shall be coated as per the coating manufacturers recommendations to restore the prime coat to an acceptable condition prior to top coating operations.

All surfaces that have been scraped, chipped, or damaged during shipping and erection and all surfaces of the prime coat that have deteriorated shall be coated to restore the prime coat.

The coating of structural steel bridge superstructure with a concrete deck shall not be done until after the construction of the deck has been completed. All concrete spills and splashes shall be washed from the structural steel prior to the mortar taking a set.

A succeeding coat shall not be applied until the previous coat has dried throughout the full thickness of the coating film.

The coatings shall be protected from discoloration and disfigurement by dust, insects, and other causes until dry. The Contractor shall protect pedestrian, vehicular, and other traffic that moves on or underneath the bridge from damage and disfigurement by errant spray and other coating operations. The Contractor shall protect all uncoated surfaces of the bridge from damage and disfigurement.

If traffic produces an objectionable amount of dust and dirt, the Contractor shall, without extra compensation, take means to prevent the dust and dirt from coming in contact with the surfaces that are being cleaned and are being coated. It shall be the Contractor's responsibility to protect all property, public and private, from damage that may result from the cleaning and coating operations.

521.18 Additional Requirements for Coating Surfaces on an Existing Bridge.

Steel and other metals shall consist of the metals of the substructure and superstructure structural steel areas and contiguous metal surfaces, and such surfaces as galvanized pipe, conduits and junction boxes, metal ladders, gratings, railings, platforms, operator's houses (metal or other material), navigation light stands, guyed masts, supporting overhead cable (excluding public utility masts, cable brackets and appurtenances), traffic gate housing, metal drains on steel spans, and surfaces of all machinery housing and parts that do not require lubrication. Any cleaning that is deemed by the Engineer to be harmful to the metal shall be discontinued.

A succeeding coat shall not be applied until the previous coat has dried throughout the full thickness of the coating film.

The coatings shall be protected from discoloration and disfigurement by dust, insects, and other causes until dry. The Contractor shall protect pedestrian, vehicular, and other traffic that moves on or underneath the bridge from damage and disfigurement by errant spray and other coating operations. The Contractor shall protect all uncoated surfaces of the bridge from damage and disfigurement.

If traffic produces an objectionable amount of dust and dirt, the Contractor shall, without extra compensation, take means to prevent the dust and dirt from coming in contact with the surfaces that are being cleaned and are being coated. It shall be the Contractor's responsibility to protect all property, public and private, from damage that may result from the cleaning and coating operations.

521.19 Method of Measurement.

The completed and accepted work shall be measured in lump sum units, each identified by station number or mile {kilometer} post number in the proposal. The quantities of surface area that may be shown on the Plans are approximate estimates of the surface area that will be required to be coated. The Contractor shall determine the actual amount of surface area that is required to be coated and base the bid on this actual amount.

521.20 Basis of Payment.

(a) Unit Price Coverage.

Separate payment for applying a coating to a new bridge will be made only when the proposal includes a pay item for this work. Otherwise, payment for this work shall be included in Items 508-A, 508-B, 508-E, or 508-F, whichever is appropriate.

Items 521-A and 521-B, measured as provided above, will be paid at the contract lump sum prices for the specified units. These prices shall be full compensation for all shop or field cleaning of metal, for containing, collecting, storing, testing, transporting and disposing of cleaning debris, for furnishing abrasives and cleaning solvents, for furnishing a surface profile comparator, for furnishing and applying the coating material, for supplying safety equipment and clothing, and for all materials, equipment, labor, and incidentals necessary to complete the work.

(b) Payment will be made under Item No.:

521-A Coating New Bridge at _____ - per lump sum
521-B Coating Existing Bridge at _____ - per lump sum

SECTION 524
REINFORCED CONCRETE BOX CULVERTS

524.01 Description.

This Section shall cover the work of constructing reinforced concrete box culverts in accordance with the details shown on the plans. The Contractor shall have the option of constructing either cast in place or precast concrete culverts if the required type of culvert is not shown on the plans.

524.02 Materials.

(a) Applicable Sections.

The requirements given in the following Sections shall be applicable (unless modified by the requirements given in this Section) to the construction of box culverts.

- Section 214, Structure Excavation and Backfill for Drainage Structures and Minor Structures
- Section 501, Structural Portland Cement Concrete
- Section 502, Steel Reinforcement
- Section 831, Precast Concrete Products

(b) Concrete for Culverts Cast in Place.

Concrete for cast in place culverts shall be Class B concrete.

(c) Joint Sealers for Precast Concrete Culverts.

Joint sealer shall be one of the types meeting the requirements given in Article 846.01, unless shown otherwise on the plans.

524.03 Construction Requirements.

(a) Excavation, Backfilling and Water Quality Protection.

1. Excavation and Backfilling.

Excavation and backfilling shall be in accordance with the requirements given in Section 214. In addition to the requirements given in Section 214, precast concrete culverts shall be placed on a bedding layer of backfill. The requirement for a bedding layer will be met if extra depth excavation and backfill is required. If extra depth excavation and backfill is not required, the bedding layer shall be a minimum compacted thickness of 4 inches {100 mm} of foundation backfill placed at least 2 feet {600 mm} wider than the extent of the outside walls (1 foot {300 mm} on each side of the culvert).

2. Water Quality Protection.

The Contractor shall be fully responsible for protecting the quality of the water at the site of the culvert by preventing erosion and by capturing and removing sediment at diversion channels and cofferdams. Unless otherwise shown on the plans, provisions for water quality protection at the culvert site shall be designed and implemented by the Contractor. Details of these provisions shall be included in the Stormwater Management Plan.

(b) Type of Required Culvert.

The type (either cast in place or precast) of required culvert may be shown in the pay item descriptions for the culvert construction. The Contractor shall construct that type of culvert if the type designation is shown. The Contractor shall have the option of constructing either cast-in-place or precast concrete culverts if the required type of culvert is not shown in the pay item description.

(c) Preparation for Culvert Extension.

The extension of a culvert shall include the cutting or breaking away of portions of the existing culvert and the preparation of the exposed structural material for joining with the new culvert materials.

(d) Culverts Constructed with Cast in Place Concrete.

1. Sequence of Concrete Placement for Slabs and Walls.

Concrete for the bottom slab shall be placed and allowed to set before the placement of concrete for the walls and top slab.

The walls and top slab in culverts that have an overall height of 8 feet {2400 mm} or less may be constructed with a continuous placement of concrete. The walls and top slab in culverts that have an overall height greater than 8 feet {2400 mm} shall be constructed by separate placements of concrete.

When the walls and top slab are constructed by separate placements of concrete, the concrete in the walls shall be strong enough to allow the placement of the concrete without damage to the walls.

2. Preparation of Construction Joints.

All construction joints shall be thoroughly cleaned of all debris. The concrete surface shall be carefully chipped and roughened in accordance with the method of bonding construction joints given in Section 501.

3. Required Construction Joints.

Construction joints shall be provided on all culverts over 60 feet {18 m} in length with the spacing of the joints set to provide approximately equal length sections along the culvert. One construction joint will be required for culvert lengths between 60 feet {18 m} and 90 feet {27 m}. Two construction joints will be required for culvert lengths greater than 90 feet {27 m} and less than 135 feet {41 m}. Three construction joints will be required for culverts from 136 feet {41 m} to 170 feet {52 m} in length. For culverts over 170 feet {52 m} in length, construction joints shall be spaced at approximately equal intervals of not less than 40 feet {12 m} nor more than 55 feet {17 m}.

All required construction joints shall be constructed normal to the center line of the culvert.

4. Tolerances.

The height and width of the openings shall not vary by more than 1 % from the plan dimensions. The slabs and walls shall not be thinner than the plan dimensions, but may be thicker by 5 % more than the plan dimensions.

The interior surfaces shall not vary by more than 1/4 of an inch {6 mm} from a 10 foot {3 m} straightedge placed anywhere on any interior surface.

The clearance of the reinforcing steel shall not be less than the plan clearance and shall not be greater than 3/8 of an inch {9 mm} more than the required plan clearance.

(e) Culverts Constructed with Precast Concrete Units.

1. Standard Details for Precast Concrete Culverts.

Precast Box Culvert units shall be manufactured in accordance with the details given in AASHTO M 259 {M 259M} "Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers".

Each precast unit shall be a one-piece design cast as a monolithic unit.

2. Submittal of Details.

Details and design calculations, sealed by a Licensed Professional Engineer, shall be submitted as Shop Drawings in accordance with all of the requirements given in Article 105.02 when the conditions of loading differ from what is given in AASHTO M 259 {M 259M}.

Details and design drawings shall be submitted as Working Drawings for all pipe entrances, connections to drainage structures, bends in culvert alignment, wingwalls, aprons and guardrail attachment in accordance with Article 105.02

3. Transition for Extending Culverts.

A uniform transition shall be constructed where new or existing cast in place culverts are extended with precast units. A doweled or tongue and groove connection shall be provided at the junction of the precast unit and the cast in place section. Details and design calculations for the transition shall be submitted in accordance with the requirements given in Article 105.02 for the submittal of Working Drawings.

4. Installation and Connection of Precast Units.

Precast units shall be laid to the same line and grade requirements noted in Item 530.03(a)2. for pipe.

The units shall be connected so that there are no gaps between the ends of the units and the inner surfaces are flush and even.

Sealant shall be applied to the mating surfaces of each unit. The method of sealing the joints shall be the method given for concrete pipe in Subitem 530.03(d)3a. Unless shown otherwise on the plans, the Contractor shall have the option to use any of the type joint sealers given for rigid pipe in Article 846.01.

5. Backfill.

Precast units shall be backfilled in accordance with the requirements given for pipe in Subarticle 530.03(e).

6. End Sections for Precast Concrete Culvert Units.

End sections for precast units, if required, shall be constructed in accordance with the details shown on the plans.

524.04 Method of Measurement.

Payment for reinforced concrete box culverts will be based on units of cubic yards {cubic meters} of Culvert Concrete and pounds {kilograms} of Steel Reinforcement.

The quantity of concrete and reinforcing steel for both cast in place and precast concrete culverts shall be based on the height and width of the openings, the number of barrels, the length of the culvert, and the quantity of concrete and reinforcing steel per unit length of the culvert shown on the plans for the construction of cast in place culverts.

The quantity of concrete and reinforcing steel shown for precast culverts will always be the quantity required for the construction of a cast in place culvert with the same height and width of openings, number of barrels and length.

Wingwalls, parapets, toewalls, and apron quantities shall also always be based on the quantities given on the plans for cast in place construction regardless of a requirement for the installation of precast units.

No additional payment will be made where barrel lengths, apron areas, backfilling, or items of work have to be increased due to the Contractor selecting the option to furnish and install precast units.

Fill concrete required between barrels of precast units will not be measured or paid for separately.

Steel Reinforcement will be measured and paid for under Section 502.

Excavation and Backfill will be measured and paid for under Section 214 with the limitation that payment for foundation backfill for a bedding layer for precast concrete culverts will only be made for a thickness of 4 inches {100 mm} and a width of 2 feet {600 mm} wider than the extent of the outside walls.

Separate payment will not be made for any other items of work involved.

524.05 Basis of Payment.

(a) Unit Price Coverage.

The contract price for Culvert Concrete and Culvert Concrete Extension shall be full compensation for all labor, tools, equipment, and incidentals necessary to construct the complete culvert and related structures (toe walls, wing walls, parapets, connections to drainage structures, etc.). The contract

price shall also be full compensation for design and submittals, construction of cofferdams, temporary diversion channels, protection of water quality at cofferdams and diversion channels, flood protection and falsework and formwork. Payment will not be separated for individual culverts.

(b) Payment will be made under Item No.:

524-A Culvert Concrete (*) - per cubic yard {cubic meter}
524-B Culvert Concrete Extension (*) - per cubic yard {cubic meter}
* Enter either Cast In Place or Precast if the type of construction must be designated.

SECTION 534
CLEANING EXISTING DRAINAGE STRUCTURES

534.01 Description.

This Section shall cover the work of cleaning existing drainage structures including all types of pipes, reinforced box culverts, underdrain outlets and other drainage structures shown on the plans.

534.02 Materials.

There will be no material requirements other than the hardware cloth for the rodent screens on underdrain outlets shown on the plans.

534.03 Construction Requirements.

Pipes, box culverts, catch basins, manholes, drop inlets, pipe underdrain outlets and other drainage structures shown on the plans shall be cleaned of all dirt, leaves, limbs, roots, grass, sludge, grease, trash and other debris. Obstructions within a 5 foot distance outside of the inlet and outlet ends of the drainage structures shall also be removed as a part of cleaning the structures.

All materials removed during cleaning shall be disposed off of the right-of-way in accordance with the requirements for disposal given in Section 206. The Contractor shall implement the "Best Management Practices" (BMP's) noted in Section 107 for the control of sediment that will be removed during the cleaning.

The Contractor shall perform the work so that there is always adequate drainage of the roadway at all times.

The Contractor shall repair all damage to drainage structures that result from cleaning methods and procedures that are used without consideration for the protection of the drainage system. The Engineer will not allow the use of any cleaning method or equipment that may result in damage to the structure or damage to the areas adjacent to the structure.

Rodent screens shall be fabricated and installed as shown on the plans or as directed by the Engineer.

534.04 Method of Measurement.

The cleaning of existing pipes, box culverts, catch basins, manholes, drop inlets, pipe underdrain outlets and other drainage structures will be measured per each drainage structure or per foot along the length of the drainage structure.

Measurement will be made only once for each item cleaned unless severe conditions result in the need for repeated cleaning and the repeated cleaning is not caused by the activities of the Contractor. All recleaning due to the activities of the Contractor shall be done at no additional cost to the Department.

Pipes, culverts and other drainage structures measured for cleaning along the length of the structure will be classified for payment based on the horizontal opening of the drainage structure.

The diameter of round pipe and the span of "span and rise" pipe will be shown as a horizontal opening classification for payment. Each pipe will be measured separately for payment regardless of the number of pipes adjacent to each other at one location.

The horizontal opening of a culvert will also be shown as a classification for payment. The horizontal opening of a culvert shall be the horizontal opening in a single barrel culvert or the sum of the horizontal openings in a multiple barrel culvert.

Two classifications of horizontal opening will be given for the purpose of measurement for payment. The first classification of horizontal opening shall be structures with an opening less than or equal to 48 inches. The second classification of horizontal opening shall be structures with an opening greater than 48 inches.

If separate pay items are not shown on the plans for cleaning catch basins, manholes, and other appurtenances to the structures measured by linear feet (pipes and culverts), the cleaning of these appurtenances will be measured for payment by including the length through the appurtenances in the total number of linear feet of the attached drainage structure. The length through an appurtenance will be added to the length of the largest structure connected to the appurtenance.

534.05 Basis of Payment.

(a) Unit Price Coverage.

The contract unit price for cleaning existing drainage structures shall be full compensation for all materials, tools and labor required for cleaning the structures, disposing of all materials that are removed from the structure and installing new rodent screens.

(b) Payment will be made under Item No.:

534-A Cleaning Pipe Underdrain Outlets - per each
534-B Cleaning Existing Catch Basin - per each
534-C Cleaning Existing Manhole - per each
534-D Cleaning Existing Drop Inlet - per each
534-E Cleaning Existing _*_ (Less Than Or Equal To 48" Horizontal Opening) - per linear foot
534-F Cleaning Existing _*_ (Greater Than 48" Horizontal Opening) - per linear foot
* Pipe, Culvert, etc.

SECTION 610
RIPRAP

610.01 Description.

This Section shall cover the work of furnishing and constructing the several classes or types of riprap, each of which shall consist of a protective course of stone or other approved materials on embankment slopes, in channels and ditches, wave protection for causeways and shoreline roadway embankments, bridge piers and abutments, or other work as shown on the plans or directed, with or without a geotextile filter, all in accordance with these specifications and in conformity with the lines, and grades noted in the plan details.

610.02 Materials.

If a geotextile filter is required, it shall meet the requirements of AASHTO M 288 for Permanent Erosion Control Geotextile, Class 1, and Section 810 of these specifications. All other materials shall conform to the requirements of Division 800, Materials. Specific reference is made to Section 814, Riprap Materials. The geotextile shall be selected from List II-3, of the Department's manual titled "Materials, Sources, and Devices With Special Acceptance Requirements". Information concerning this list is given in Subarticle 106.01(f) and ALDOT-355.

In locations where maintaining the clear zone is a consideration, a traversable tied concrete block mat may be used in lieu of riprap. Tied concrete block mat shall be selected from the Department's Miscellaneous Approved Products List/LIST II-24 "TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL PRODUCTS." All mats must be installed with the manufacturer's recommended underlayments/backings for site specific conditions. All mats and accompanying underlayments/backings shall have a minimum shear stress capacity of 10 pounds per square foot as tested per ASTM D6460. Prior to installation, the contractor shall submit documentation from the manufacturer, indicating the product meets the requirements for approval by the Engineer.

610.03 Construction Requirements.

(a) General.

All slopes to be treated with riprap shall be trimmed to the lines and grades indicated by the plans or directed; loose material shall be compacted by methods approved by the Engineer or removed.

Slopes which require a geotextile blanket under the riprap shall, in addition to the above, be prepared as noted in Subarticle (b) below.

Placement of any riprap on a filter blanket shall be by such means that will not damage or destroy the blanket. Any damage to the blanket shall be repaired without additional compensation.

Unless otherwise authorized or directed by the Engineer, riprap protection for bridge ends shall be placed immediately following the grading operations. The bridge Contractor shall protect any slope protection material in place during the bridge construction and shall be responsible for any damage due to negligence on the part of his operations.

If directed by the Engineer or shown by plan details, all outer edges and the top of riprap where the riprap terminates shall be formed so that the surface of the riprap will be embedded and even with the surface of the ground and/or slope.

All riprap construction shall begin at the bottom of the slope and progress upward.

(b) Filter Blanket.

1. General.

Unless otherwise specified by the plans or ordered in writing, the Contractor may select one of the filter blanket materials provided in Article 814.03 for construction of the filter blanket except that a geotextile blanket will not be allowed for soils with 85% by weight {mass} passing the #200 {75 µm} sieve.

If an aggregate blanket is used, the blanket shall be constructed using the designated material to a minimum thickness of 6 inches {150 mm}, unless otherwise shown by the plans, all in accordance with the provisions noted in this Subarticle and the plan details.

If a geotextile filter is used, it shall conform with Article 610.02 of this Section.

2. Foundation Preparation.

Areas on which filter blankets are to be placed shall be uniformly trimmed and dressed to conform to cross sections shown by the plans within an allowable tolerance of plus or minus 3 inches {75 mm} from the theoretical slope lines and grades.

3. Placement.

a. Aggregate Blankets (Gravel or Crushed Stone).

Filter blanket material shall be spread uniformly on the prepared base, in a satisfactory manner, to a thickness of not less than 1/2 of an inch {10 mm} from that specified and to neat lines as indicated on the plans. Placing or spreading of material by methods which will tend to segregate particle sizes within the filter layer will not be permitted. Any damage to the surfaces of the filter blanket foundation during the placing of the filter blanket shall be repaired before proceeding with the work. Compaction of the filter material will not be required but shall be finished to present a reasonably even surface free from mounds, depressions, or windrows.

b. Geotextile Filter.

Exposure of geotextiles to the elements between lay down and cover shall be a maximum of 14 days to minimize damage potential.

The geotextile shall be placed and anchored on a smooth graded surface approved by the Engineer. The geotextile shall be placed in such a manner that placement of the overlying materials will not excessively stretch or tear the filter. Anchoring of the terminal ends of the geotextile shall be accomplished through the use of key trenches or aprons at the crest and toe of the slope. In certain applications, 18 inch {450 mm} long anchoring pins, placed on 2 to 6 foot {1 to 2 m} centers, depending on the slope of the covered area, should be used to expedite construction.

Successive geotextile sheets shall be overlapped in such a manner that the upstream sheet is placed over the downstream sheet and/or upslope over downslope. In underwater applications, the geotextile and required thickness of backfill material shall be placed the same day. The backfill placement shall begin at the toe and proceed up the slope.

Riprap and heavy stone filling shall not be dropped onto the geotextile from the height of more than 1 foot {300 mm}. Slope protection and smaller sizes of stone filling shall not be dropped onto the geotextile from a height exceeding 3 feet {1 m}. Any geotextile damaged during placement shall be replaced as directed by the Engineer at the Contractor's expense.

The geotextile shall be joined by either sewing or overlapping. All seams shall be subject to the approval of the Engineer.

Overlapped seams shall have a minimum overlap of 12 inches {300 mm} except where placed underwater where the overlap shall be a minimum of 3 feet {1 m}.

A geotextile patch shall be placed over the damaged area and extend 3 feet {1 m} beyond the perimeter of the tear or damage.

(c) Stone Riprap.

1. General.

Unless otherwise shown by the plan details or directed, stone riprap shall not be placed on slopes steeper than the natural angle of repose of the riprap material.

Placement of stones may, unless otherwise noted in this Subarticle, be placed by methods and equipment approved by the Engineer suitable for the purpose of placing the riprap in accordance with the requirements for the class riprap involved without damaging any existing facility or construction feature.

2. Class 1.

Class 1 riprap is essentially designed for hand placement and use with minimal water currents. Stones shall be laid with close broken joints and resting on the embankment slope. The stones shall be of such shape and shall be so laid as to produce a single layer of stone of the thickness shown on the plans, measured perpendicular to the slope. The bottom course shall be laid in a trench excavated to such depth below the toe of the slope that all parts of the bottom course will be 3 feet {1 m} below the toe. Trenching will not be required where the toe of the slope is below

water level. The back of the trench shall be on the same slope as the fill. The laying of the courses shall progress upward, the larger stones being placed in the lower courses. The individual pieces of stone in each horizontal course shall be laid so that they will break joints with the stones in the course below the tops sloped to drain away from embankment. Open joints shall be filled with spalls, or small stones in such manner that all stones are tightly wedged or keyed. The finished surface shall present a reasonably uniform appearance and shall not vary more than 6 inches {150 mm} from the average surface. The finished surface at the ends of the riprap shall be flush with the adjacent earth fill surface.

3. Class 2 and 3.

Class 2 and 3 riprap is designed for use in areas with minimal to medium water currents and wave action. The stones shall be placed in such a manner as to produce a reasonably well graded mass of rock with the minimum practical percentage of voids. The riprap shall be constructed to the lines, grades and thickness shown by the plans or directed within a tolerance of plus 15 inches {375 mm} or minus 3 inches {75 mm} from the designated finish surface of the riprap, except that either extreme of such tolerance shall be reached as a uniform rate over an area greater than 200 square feet {19 m^2}. Riprap shall be placed in its full course thickness in one operation and in such a manner as to avoid displacing the filter blanket material, where filter blanket is required. The larger stones shall be well distributed and the entire mass of stones in their final position shall conform to a reasonable uniform gradation. The finished riprap shall be free from objectionable pockets of small stones and clusters of larger stones. Placing riprap by dumping into chutes or by other methods likely to cause segregation of sizes will not be permitted. The desired distribution of the various sizes of stones throughout the mass shall be obtained by selective loading of the material at the source, by controlled dumping of successive loads during final placing, or by other methods of placement which will produce the specified results. Rearranging of individual stones by mechanical equipment, or by hand, will be required to the extent necessary to obtain a reasonably well graded distribution of stone as specified above.

4. Class 4 and 5.

Class 4 and 5 riprap is designed for use in medium to high water currents and wave actions for the protection of bridge piers and abutments, and protection of channel slopes. Stones may be placed without strict gradation controls provided sufficient small sizes are included to choke the larger stones. Dumping of the stones will be allowed; however, mechanical equipment to dress the material to a reasonable uniform slope will be required. Stones deposited contrary to directions will be considered wasted and will not be paid for.

(d) Concrete Sacked Riprap.

Immediately following mixing, as noted in Article 814.02, the mixture shall be placed in the bags, tied (so that when laid in position they will flatten out and give a thickness of not less than 6 inches {150 mm} and placed flat on the area designated. Bags shall be rammed against each other to form closed joints, with tied ends of sacks all laid in the same direction. When required to be placed under water, special care shall be taken to see that bags are closely jointed to give the same tight joints as required on dry slopes. After the riprap is placed, it shall be sprinkled with water as directed and kept damp for not less than three days. No Concrete Sacked Riprap shall be mixed in freezing weather.

(e) Tied Concrete Block Mat.

Tied concrete block mat shall be placed according to the manufacturer's recommendations.

(f) Maintenance.

The Contractor shall maintain all riprap until the contract is accepted, and shall replace, without additional compensation, any damaged or lost riprap.

610.04 Method of Measurement.

Loose Riprap of the class designated by the plans or proposal will be measured in square yards {square meters}, computed from measurements taken parallel to the surface of the riprap or in tons {metric tons} as specified in Subarticle 109.0l(h), whichever is specified by the plans or proposal.

Concrete Sacked Riprap, Filter Blanket, and Tied Concrete Block Mat will be measured in square yards {square meters} computed from measurements taken parallel to the outer surface of the riprap or the filter blanket, whichever is applicable.

610.05 Basis of Payment.

(a) Unit Price Coverage.

The contract unit price for Loose Riprap, Concrete Sacked Riprap, Filter Blanket, and Tied Concrete Block Mat shall be full compensation for furnishing and hauling all materials, preparation of the placement area, placing materials and for all equipment, tools, labor and incidentals necessary to complete these items of work.

The preparation of the area for the placement of riprap and tied concrete block mat includes excavation, dressing the placement area and surrounding area, and the disposal of any excess excavated material. Payment for this preparation shall be included in the contract unit price for the riprap unless otherwise noted on the plans.

(b) Payment will be made under Item No.:

610-A Loose Riprap, Class ____ , ____ inches {mm} Thick - per square yard {square meter}
610-B Concrete Sacked Riprap - per square yard {square meter}
610-C Loose Riprap, Class ____ - per ton {metric ton}
610-D Filter Blanket, _*_ - per square yard {square meter}
610-E Tied Concrete Block Mat - per square yard {square meter}

* If a specific type of blanket is required, so designate (aggregate or geotextile).

SECTION 650
TOPSOIL

650.01 Description.

This Section shall cover the work of furnishing and placing topsoil and the placement of State furnished topsoil from stockpiles.

650.02 Materials.

(a) Required Properties of Topsoil.

Topsoil furnished or stockpiled by the Contractor shall meet the requirements given in ASTM D 5268 "Standard Specification for Topsoil for Landscape Purposes". The composition of the topsoil shall be as follows (from ASTM D 5268):

REQUIRED PROPERTIES OF TOPSOIL	
Deleterious Materials (rock, gravel, slag, cinder, roots, sod) in the Total Sample	7 % maximum by weight {mass}
Organic Material in Portion of Sample Passing the No. 10 {2 mm} Sieve	2 % to 20 % by weight {mass}
Sand Content in Portion of Sample Passing the No. 10 {2 mm} Sieve	10 % to 90 % by weight {mass}
Silt and Clay Content in Portion of Sample Passing the No. 10 {2 mm} Sieve	10 % to 90 % by weight {mass}
pH	5 to 7

Topsoil will be sampled at the source and tested prior to application by the Engineer in accordance with ASTM D 5268 for compliance with these requirements.

(b) Sources of Topsoil.

1. Topsoil Furnished by Contractor.

Topsoil furnished by the Contractor shall be taken from areas outside of the Right of Way. The areas where topsoil is removed shall be developed, maintained and restored in accordance with the requirements given in Subarticle 106.01(b).

2. Topsoil Furnished by the State from Stockpiles.

The Contractor shall use topsoil from stockpiles that were created in accordance with the requirements given in Subarticle 210.03(b).

650.03 Construction Requirements.

(a) Preparation for Topsoil Placement.

The Contractor shall not place topsoil from any source (Contractor furnished or State furnished) until the Engineer has been given the opportunity to sample, test and evaluate the source for compliance.

The grading and shaping of the area where topsoil must be placed shall be completed prior to the placement of the topsoil unless directed otherwise by the Engineer.

(b) Application of Topsoil.

Topsoil shall be applied to the depth shown on the plans or as directed by the Engineer. Applied topsoil shall be compacted by tracking. Tracking shall be accomplished by the operation of a tracked vehicle leaving ridges perpendicular to the direction flow of water down the slope. The topsoil shall then be prepared in accordance with the requirements given in 652.03. Ground preparation and vegetation establishment operations shall commence as soon as possible after the application of topsoil per 210.03(a)to reduce the potential for the erosion of the topsoil.

(c) Portions of Stockpiles that remain after Removal of Topsoil.

Portions of stockpiles that remain after the removal of topsoil shall be reshaped as directed by the Engineer. Any additional temporary or permanent seeding, mulching and other erosion control measures that are required will be paid for under the appropriate items of work.

650.04 Method of Measurement.

(a) Topsoil, Item 650-A.

This item covers topsoil material furnished by the Contractor. Topsoil furnished by the Contractor will be measured in cubic yards {cubic meters} by loose measure in the delivery vehicle at the point of delivery.

(b) Topsoil from Stockpiles, Item 650-B.

This item covers topsoil made available to the Contractor in State furnished stockpiles on the Right of Way. This topsoil will be measured in cubic yards {cubic meters} by the cross section and average end areas method at the stockpile.

650.05 Basis of Payment.

(a) Unit Price Coverage.

Topsoil will be paid for at the contract unit price per cubic yard {cubic meter}, which shall be full payment for furnishing the topsoil, ground preparation handling, hauling, spreading, shaping, harrowing, disking, compaction, disposal of unacceptable material, and for furnishing all equipment, tools, labor and incidentals necessary to complete the work.

Topsoil from Stockpiles will be paid for at the contract unit price per cubic yard {cubic meter}, which shall be full payment for ground preparation, cleaning and removing debris from the topsoil, handling, hauling, spreading, shaping, harrowing, disking, compaction, and for furnishing all equipment, tools, labor and incidentals necessary to complete the work.

(b) Payment will be made under Item No.:

650-A Topsoil - per cubic yard {cubic meter}
650-B Topsoil from Stockpiles - per cubic yard {cubic meter}

SECTION 652
GROUND PREPARATION, VEGETATION ESTABLISHMENT AND MOWING

652.01 Description.

This Section shall cover ground preparation work and the work of establishing an acceptable permanent stand of vegetation of the species designated for establishment. This section also covers mowing of vegetated areas.

652.02 Materials.

Materials (seed mixes, mulch, fertilizer, etc.) shall be furnished in compliance with the requirements given in Section 860.

652.03 Construction Requirements.

(a) Construction Sequence.

The required sequence and timing of the placement of permanent seeding during excavation and embankment construction is given in Subarticle 210.03(a). The Engineer may direct, even to the exclusion of other operations, that the Contractor promptly complete grading and ground preparation to allow the establishment of permanent vegetation in areas where it is necessary for the control of erosion and sediment.

(b) Seed Mixes for the Establishment of Permanent Vegetation.

The appropriate seed mix shall be chosen from tables in Section 860. The appropriate seed mix is based on planting zone, planting date, and type of area to be seeded. Seed mixes of a temporary nature are required in some areas of the State when permanent seed mixes are out of season. These mixes are shown in Section 860 as requiring seeding in stubble for the establishment of the required permanent plant.

(c) Inspection.

The Contractor shall notify the Project Manager at least 48 hours in advance of any work related to seeding. This includes the mixing of seed as well as the sowing of seed. The Contractor shall notify the Engineer of the proposed type of seed mix or mixes to be incorporated into the project prior to beginning seeding operations. Seeding work shall not begin prior to the measurement of the area to be seeded. All work shall be performed in the presence of the Engineer.

(d) Preparation and Planting in Soft Soil.

1. Ground Preparation.

After grading and topsoil placement and prior to ground preparation, the Contractor shall remove all boulders, stumps, roots, or other objects with any dimension larger than 2 inches {50 mm}. Topsoil shall meet the requirements given in Section 650.

Ground preparation shall consist of cultivating the topsoil to a loose depth of at least 4 inches {100 mm} except on slopes 2:1 or steeper. The plowing, harrowing, cultivating, and all other operations shall be performed with proper equipment and in such a manner as to break up all clods.

The ground shall be plowed to the required depth and then cultivated with a rotary tiller or disk harrow, in crossing directions if necessary, until the result is a smooth, uniform, loose, and well broken soil providing a suitable bed for seed. In small or inaccessible areas the use of hand tools will be permitted. The Contractor shall add water as necessary to provide sufficient soil moisture to prepare the ground.

All trash and other debris shall be removed from the cultivated topsoil. All pieces of wood, rocks and unbroken clumps of earth with any dimension larger than 2 inches {50 mm} shall be removed from the planting area.

2. Initial Soil Amendments.

The initial fertilization shall be a commercial fertilizer that will provide at least 120 pounds {135 kg} of N, 120 pounds {135 kg} of P_2O_5, and 120 pounds {135 kg} of K_2O per acre {hectare}, as computed from the nominal contents of fertilizer elements. Only one half of this rate shall be applied when the required seeding is Annual Ryegrass. Agricultural limestone (lime) shall be applied prior to seeding at a rate of two tons per acre {4.5 metric tons per hectare}. Lime may be applied in dry, pelletized or slurry form. The rate of application is required regardless of the form of application.

The required rates of placement of fertilizer and lime may increase as directed by the Engineer based on the results of the testing of the Topsoil from Stockpiles as described in Article 650.02. Additional fertilizer and lime for Topsoil from Stockpiles will be paid for separately in accordance with the requirements given in Article 652.05. Reductions in rates will result in a price adjustment for seeding.

Fertilizers and agricultural limestone (lime) shall be applied uniformly at the required rates of placement. The fertilizer shall be well pulverized and free of lumps when applied. In no case shall fertilizer that is not mixed with soil be permitted to be in direct contact with seed. When fertilizers are applied hydraulically they shall be diluted sufficiently so that no damage is done to either seed or established vegetation. Agricultural limestone, basic slag or a combination of limestone and slag shall be applied separately but may be incorporated into the soil with fertilizers in one operation.

Fertilizerand agricultural limestone that is not applied hydraulically shall be uniformly mixed with the soil by harrows, rotary tillers, or other soil mixing equipment prior to subsequent operations. Mixing with the soil will not be required when the fertilizerand agricultural limestone is applied hydraulically.

3. Sowing Seed.

Mechanical or hydraulic seeders shall be used for sowing unless approved otherwise by the Engineer.

Sowing shall not be performed during windy weather, when the prepared surface is crusted, or when the ground is frozen, wet or otherwise in a non-tillable condition. The addition of water may be required to render excessively dry soils tillable.

Equipment for applying seed hydraulically shall be designed for this purpose. The equipment shall be capable of mixing and pumping the water, seed mixture, mulch and fertilizer uniformly over the area to be seeded. Power driven agitators shall be provided to keep the mixture uniform during the application.

4. Covering Seed.

Care shall be exercised during covering operations to preserve the line, grade and cross-section of the seeded areas so that areas adjacent to pavement, walks, etc., are not left higher than the paved surface. The seed bed shall be compacted immediately after sowing. Compaction shall be done with a cultipacker, light roller or approved drag. The weight {mass} of the roller or drag needed shall be determined by the Contractor according to the type and physical condition of the soil. Rolling or covering of seed may be omitted when both seeding and mulching are hydraulically applied.

5. Mulching.

Mulching shall be applied in accordance with the requirements given in Section 656. Seeded areas shall be covered with mulch within 48 hours after seeding. Mulching will be measured and paid for separately under Section 656.

6. Soil Amendments After Growth.

After the required plant species have emerged and shown normal growth (usually approximately 40 days) and while the soil surface is moist, a second application of fertilizer shall be made. This second application shall be placed as a uniformly applied top dressing of 40 pounds {45kg} each of N, P_2O_5, and K_2O per acre {hectare}, respectively or equivalent approved by the Engineer.

This application of fertilizer will not be required for temporary planting (Annual Ryegrass).

(e) Preparation and Planting in Rocky or Hardpan Areas.

1. Conditions for Planting in Rocky Areas.

The requirements for planting in rocky or hardpan areas shall apply when the Engineer determines that the area is too rocky or compacted for plowing, disking, and harrowing, but is sufficiently soft or shaley to permit some form of treatment

2. Initial Soil Amendments.

One half of the fertilizer and all of the lime required for the initial fertilization of soft soil shall be applied before the initial scarification.

3. Initial Scarification.

The fertilizer and lime shall be worked into the rocky or hardpan area by an initial scarification as directed by the Engineer.

4. Coverage with Topsoil.

Approximately 4 inches {100 mm} of topsoil shall be placed over the scarified and fertilized rocky or hardpan area.

5. Soil Amendments after Placement of Topsoil.

The second half of the fertilizer required for the initial fertilization of soft soil shall be applied after the placement of the topsoil.

6. Sowing, Covering, Mulching and Fertilizing after Growth.

The sowing of the seeds, covering of the seeds, mulching, and fertilization after growth of the seeds shall be in accordance with the requirements given for this work in soft soil.

(f) Preparation and Planting on Steep Slopes (2H:1V or Steeper).

1. Ground Preparation.
   Planting operations may proceed without further ground preparation after topsoil spreading and tracking if the planting can be accomplished within 72 hours after the tracking operations. Tracking is the mechanical roughening of the slope surface. Tracking shall be accomplished by the movement upslope and downslope (not along the slope) of heavy equipment that operates on tracks.
2. Initial Soil Amendments.
   One half of the fertilizer and all of the lime required for the initial fertilization of soft soil shall be applied hydraulically.
3. Sowing.
   The sowing of seeds shall be in accordance with the requirements given for this work in soft soil with the exception that hydraulic seed application is required.
4. Mulching.
   Mulching shall be applied in accordance with the requirements given in Section 656. Seeded areas shall be covered with mulch within 48 hours after seeding. Mulching will be measured and paid for separately in accordance with the requirements given in Section 656.
5. Second Application of Fertilizer after Mulching.
   Half of the fertilizer required for the initial fertilization of soft soil shall be applied hydraulically approximately 40 calendar days after mulching.
6. Third Application of Fertilizer.
   A third application of fertilizer shall be made approximately 40 calendar days after the second application of fertilizer. This application shall be placed hydraulically as a uniformly applied top dressing of 500 pounds {560 kg} of 8-8-8 fertilizer per acre {hectare} or equivalent approved by the Engineer.

(g) Seeding in Stubble.

The seeding in stubble method of planting shall be used to establish permanent species when initial vegetation establishment occurs during a season that is not optimal for the permanent planting. Dates for seeding in stubble are designated in the seed mix tables in Section 860.

This method requires that the existing vegetation be mowed to a height of approximately 3 inches {75 mm} or sprayed with an approved herbicide, or both, to retard further growth. The area shall then be lightly scarified by disking or other approved method to prepare a suitable seedbed. The initial fertilization, sowing of the seeds, covering of the seeds, and fertilization after growth of the seeds shall be in accordance with the requirements given for this work in soft soil. Additional agricultural lime application will not be required for seeding in stubble. Mulch may be applied to bare areas if requested by the Contractor and approved by the Engineer. Mulch shall be furnished and paid for in accordance with the requirements given in Section 656.

(h) Establishment and Acceptance.

All work shall be conducted in accordance with the requirements given in Section 665 as well as the requirements given in this Section.

The Contractor shall provide plant establishment of the required species of permanent vegetation prior to final acceptance of the project. Plant establishment shall consist of preserving, protecting, reseeding, or replanting and other such work and at such time as may be necessary to keep the vegetated areas in a satisfactory condition.All of the above work shall be performed without additional compensation, unless otherwise specified.

The acceptance of designated seeded areas will be based upon verification of a satisfactory stand of vegetative cover in the season for each species required for establishment. If a satisfactory stand of desired vegetation is not established, the area shall be re-seeded after appropriate soil preparation and re-established without additional cost to the Department.

A satisfactory stand of vegetative cover shall be defined as a cover of living plants, after true leaves are formed, of the required seed species designated for establishment. Generally an 85 % coverage will be considered acceptable. Should the Contractor protest the determination of satisfactory stand based on visual analysis, a random sampling of 5 samples per acre {0.4 ha} using a square yard {meter} template may be executed to determine the percent coverage. There should be no areas void of the required species larger than 4 square feet {0.4 square meter}. Payment for seeding, fertilizer, and agricultural limestone and mulch will be made in full upon satisfactory application.

Payment for additional fertilizer and agricultural limestone will be made in accordance with the requirements given in Article 652.05. Payment for seeding may be withdrawn for areas where vegetative cover is not established or not satisfactorily maintained and fertilized after establishment.

Every effort should be made to establish vegetation of permanent species in accordance with the seasonal requirements shown for each species in Section 860. Areas where the season and required seed mix causethe method of seeding in stubble to be necessary for the establishment of a permanent plant will not be considered acceptable until vegetation of a permanent species is satisfactorily established. The project will not be accepted for maintenance prior to acceptable establishment of vegetation after seeding in stubble.

Payment will not be made for areas of unsatisfactory stands of vegetative cover, the repair of areas damaged by the Contractor, or for the repair of washes in areas where sufficient erosion control measures are available to the Contractor.

Requests from the Contractor for payment for areas of unsatisfactory stands of vegetative cover will not be considered by the Construction Engineer without the submittal of documentation of absolute adherence to the requirements for the application of topsoil and for the establishment of the vegetation.

(i) Mowing.

The Contractor shall mow all seeded areas of medians, shoulders and front slopes as directed or permitted by the Engineer. The Contractor shall mow when the vegetation becomes a hazard to motorists and as necessary to promote growth of the required permanent plant. Mowing shall be performed in a manner that will not cause unnecessary damage to desirable vegetation. Mowing of lespedezas and tall fescue shall not be done until after these plants have produced mature seed.

Mowing shall generally be done twice each year as directed or permitted by the Engineer and when vegetation has grown to a height of 16 inches. If the project is being considered for acceptance for maintenance by the Department and has been mowed within the last 2 months, additional mowing will not be required.

The Contractor shall mow, cut and trim as close as practicable to all fixed objects, exercising extreme care not to damage trees, plants, shrubs, delineators and other appurtenances. Damage to trees, plants, shrubs, delineators or other appurtenances shall be repaired or replaced immediately by the Contractor at no cost to the Department. The Engineer will determine if the damage must be corrected by repair or replacement.

652.04 Method of Measurement.

(a) Seeding.

Seeding will be measured in acres {hectares} parallel to the seeded surface regardless of the method of establishment.

(b) Mowing.

Mowing will be measured in acres {hectares} parallel to the mowed surface. Each separate mowing of the same location will be measured separately.

652.05 Basis of Payment.

(a) Unit Price Coverage.

Seeding will be paid for at the contract unit price per acre {hectare} which shall be full compensation for all ground preparation, furnishing, preparing, soil amendments (fertilizer and lime), seeds, including water needed in mixing, planting, establishing, and maintaining of the seeded areas until final acceptance, and for all materials, equipment, tools, labor, and incidentals necessary to complete the work. Additional fertilizer or agricultural limestone ordered by the Engineer will be paid at the verified invoice price plus 15 percent. The seeding item will be used for payment for establishing vegetation regardless of the methods used for planting and establishment. Vegetation established outside of the normal planting season (annual ryegrass) will be paid for at the contract price for seeding. Vegetation established by seeding in stubble will also be paid for at the contract unit price for seeding.

All mowing, cutting and trimming, including mowing required for seeding in stubble will be paid for at the contract unit price bid per acre {hectare} which shall be payment in full for the mowing including equipment, labor, and incidentals necessary to complete this item of work. The contract unit price shall also be for mowing required when the vegetation becomes a hazard to motorists and as necessary to promote growth of the required permanent vegetation.

(b) Payment will be made under Item No.:

652-A Seeding - per acre {hectare}
652-C Mowing - per acre {hectare}

SECTION 654
SOLID SODDING

654.01 Description.

This Section shall cover the work of furnishing solid grass sodding in designated locations throughout the construction limits of the work. Basic work consists of ground preparation, furnishing and placing required soil amendments, and furnishing and installing sod and maintenance of the sod including watering of the sod for the life of the contract.

654.02 Materials.

All materials shall conform to the requirements of Article 860.05. A list of acceptable mulch control netting products (LIST II-20, "TACKIFIERS, MULCH CONTROL NETTING, AND HYDRAULIC MULCH PRODUCTS") is given in the ALDOT's MSDSAR manual.

654.03 Construction Requirements.

The installation of sod shall be performed by or under the direct supervision of a licensed applicator in the area of Horticulture Professional Service for Setting of Landscape Plants. Areas to receive sod shall be prepared in accordance with the requirements for planting vegetation in soft soil given in Section 652. The requirements for ground preparation and the application of initial and final amendments to the soil shall apply to this work. Rolled and rectangular sod pieces shall be placed long edge perpendicular to the flow of water on the prepared and amended soil with no gaps between the individual sod pieces or rolls. The entire sodded area shall be rolled with a weighted roller to set each piece of sod into the topsoil. Staking or stapling of sod is required on slopes 3:1 or steeper and all channel applications. The stapling shall also occur at the transition overlaps and shall be placed through both abutting pieces of sod. When required by the plans, mulch control netting shall be applied in accordance with Section 656 and shall be a subsidiary obligation.

The Contractor should water the sod immediately after installation, and the sod shall receive approximately 1.5 inches of rainfall or irrigation per week during the Summer or 1 inch of rainfall or irrigation per week during the Spring and Fall. Dormant sod laid during the Winter requires less frequent rainfall or irrigation, but the sod shall be watered prior to a hard freeze in a dry or drought state to protect the root bed. The Contractor shall also fill washes and otherwise protect and maintain all sodded areas until the contract is accepted for maintenance or until the bond is released if a bond was required. Payment will not be made for areas of unsatisfactory stands of vegetative cover, the repair of areas damaged by the Contractor, or for the repair of washes in areas where sufficient erosion control measures are available to the Contractor. Requests from the Contractor for payment for areas of unsatisfactory sod will not be considered without the submittal of documentation of absolute adherence to the requirements for the establishment of the solid sodding.

The requirements given in Section 652 shall apply to the determination of a satisfactory installation of solid sod except that a 95 % living coverage will be required.

654.04 Method of Measurement.

Solid Sodding will be measured in square yards {square meters} from measurements made parallel to the surface of the area covered by the sod.

654.05 Basis of Payment.

(a) Unit Price Coverage.

Solid Sodding will be paid for at the contract unit price, which price shall be full compensation for furnishing the sod, ground preparation, planting, staking or staples, soil amendments, rolling, watering, and maintaining the sod until acceptance of the contract, and for all other materials, equipment, tools, and labor necessary to complete the work. Additional fertilizer or agricultural limestone ordered by the Engineer will be paid at the verified invoice price plus 15 percent.

(b) Payment will be made under Item No.:

654-A Solid Sodding - per square yard {square meter}

SECTION 656
MULCHING FOR VEGETATION ESTABLISHMENT

656.01 Description.

This Section shall cover the work of furnishing and placing mulching materials over the soil surface to provide protection from soil erosion and to aid in retention of soil moisture for vegetation establishment.

656.02 Materials.

Mulch materials shall be furnished in compliance with the requirements given in Article 860.03. A list of acceptable Hydraulic Mulch products, Mulch Control Netting and Tackifiers (List II-20, "TACKIFIERS, MULCH CONTROL NETTING, AND HYDRAULIC MULCH PRODUCTS") is given in the ALDOT's MSDSAR manual.

656.03 Construction Requirements.

(a) Mulching Operations.

Seeded areas shall be covered with mulch within 48 hours after seeding. Mulch shall be applied at the rates required below for the type of mulch used. Mulch shall be furnished to effectively control erosion and promote the establishment of vegetation.

Dry blown mulch shall be stabilized by crimping, by the application of a tackifier adhesive, or by anchoring with a mulch control netting, with the following exceptions: crimping shall only be allowed on slopes 3:1 or flatter, and tackifier adhesive shall be required for applications within 10 feet {3 meters} of traffic. During crimping operations, care shall be taken to follow as closely as possible to the contours of the mulched surface. Crimping shall result in the mulch being securely lodged into the soil providing both erosion protection and promotion of vegetation establishment. Tackifier adhesive shall be applied at the rate recommended by the manufacturer.

Hydraulic Mulch products shall be applied in accordance with manufacturer recommendations, typically in opposing directions to provide a solid blanket of mulch product. Hydraulic Mulches may be used within 10 feet {3 meters} of traffic as an alternate to dry blown mulch with tackifier adhesive. Hydraulic Mulches and tackifiers shall not be installed in areas subject to channelized flow or areas having a potential to flood during a local 2 year, 24 hour storm event.

(b) Rate of Mulch Application.

Dry blown mulch shall be applied at a rate of not less than 2 tons per acre {4500 kg/ha}. Proof of material weight shall be provided to the Engineer by the Contractor upon delivery of the materials to the project site. The weight ticket shall contain all items required in Item 109.01(h)2. with the exception of the name of the producer and the truck number.

Hydraulic Mulch products shall be applied at the rate designated by the manufacturer for the specific slope where they are being applied to provide a solid blanket of the mulch product with no soil showing. In no case shall the applied rate be less than 1 ton per acre {2250 kg/ha} for hydraulically applied mulches.

The application rate will be verified by using the air dry weight {mass} per pound {kilogram} and dividing by the surface dimensions of the area covered.

(c) Equipment.

Dry blown mulch shall be applied with a mechanical mulch spreader designed to break up balls or clusters of mulch. If a tackifier adhesive is used to secure the mulch, the mulch spreader shall be equipped to apply the adhesive effectively to the mulch to form a uniform, porous and stable mulch blanket held in place by the adhesive. The adhesive may also be applied hydraulically after mulch application.

Crimpers shall be roller-type devices equipped with flat, uncupped, dull edged disks. The disks shall have a minimum width of 1/4 of an inch {6 mm} and shall be placed a maximum of 8 inches {200 mm} apart along the axle or shaft. Crimpers shall be specially designed so that by adding weight {mass} or using hydraulic force from the tractor the mulch will be imbedded a minimum of 2 inches {50 mm} into the ground. The diameter of the disks shall be large enough to prevent the axle or shaft from dragging or in any way disturbing the mulch or soil. Under no circumstances shall a disc harrow be used to perform the crimping operation.

Hydraulic mulch application shall be performed using equipment designed for this purpose and that is in compliance with the recommendations of the mulch product manufacturer.

656.04 Method of Measurement.

Mulch will be measured by the acre {hectare} of the finished surface dimensions of the area ordered treated.

656.05 Basis of Payment.

(a) Unit Price Coverage.

Mulch will be paid for at the contract unit price which shall be payment in full for materials, including tackifiers or mulch control netting (if used), equipment, tools and labor necessary to furnish, place and maintain the mulch.

Payment for this work will be made upon satisfactory application of the mulching.

(b) Payment will be made under Item No.:

656-A Mulching - per acre {hectare}

SECTION 659
ROLLED AND HYDRAULIC EROSION CONTROL PRODUCTS

659.01 Description.

This Section shall cover the work of furnishing, installing, and maintaining Rolled Erosion Control Products (RECPs) and Hydraulic Erosion Control Products (HECPs). RECPs and HECPs will be referred to as "erosion control products" in this section. Areas to be covered by erosion control products (ECPs) will be shown on the plans or will be designated by the Engineer.

659.02 Materials.

(a) Acceptable Erosion Control Products.

Erosion control products shall be furnished in compliance with the requirements given in Article 860.11. A list of acceptable erosion control products (LIST II-11 "ROLLED AND HYDRAULIC EROSION CONTROL PRODUCTS") is given in the ALDOT manual titled "Materials, Sources, and Devices with Special Acceptance Requirements". Information concerning the list and manual is given in Subarticle 106.01(f) and ALDOT-355 "General Information Concerning Materials, Sources, and Devices with Special Acceptance Requirements".

(b) Utilization of Erosion Control Products.

Erosion control products shall utilized as the final stabilization layer in conjunction with the required permanent vegetation.

1. Degradable Erosion Control Products.
   Degradable ECP's shall be furnished to effectively control erosion and enhance the establishment of vegetation during a defined minimum period of time called "functional longevity". The Contractor shall be responsible for selecting approved ECPs with a functional longevity of sufficient duration to allow establishment of permanent vegetation prior to product degradation or as shown on the plans or as designated by the Engineer.
2. Permanent Erosion Control Products.
   Permanent ECPs shall be furnished to effectively control erosion, enhance the establishment of vegetation, and permanently reinforce vegetation for applications where permanent vegetation alone will not provide sufficient protection against anticipated erosive forces.

(c) Selection of Erosion Control Products.

ECPs will be specified based on the characteristics of the intended application site. The maximum slope or the maximum anticipated channel shear stress from the flow of water is given in the following table for each type of erosion control product.

EROSION CONTROL PRODUCTS			
Product Application	**ECP Type**	**Maximum Slope (H:V)**	**Maximum Anticipated Channel Shear Stress[1] (Pounds per Square Foot)**
Slope	S4	4:1	-
	S3	3:1	-
	S2	2:1	-
	S1	1:1	-
Channel	C2	-	2.0
	C4	-	4.0
	C6	-	6.0
	C8	-	8.0
	C10	-	10.0

NOTE 1 (in the table of ECPs) : The approximate shear stress that an ECP would be exposed to in a channel may be calculated from the formula:

- Approximate Shear Stress = g X D X S_b
- g = Unit weight of water: 62.4 pounds per cubic foot;
- D = maximum expected depth of water in the channel (feet);
- S_b = slope of bed in (feet per foot).

659.03 Construction Requirements.

(a) Required Type of ECP.

The Contractor shall furnish the Type of ECP shown on the plans or designated by the Engineer. Unless shown otherwise on the plans, RECPs and HECPs may be used interchangeably if equivalent RECPs and HECPs are approved for use. The required Type of ECP shall not be changed without the written approval of the Engineer. Areas requiring rapidly degrading or no-net products will be shown on the plans.

If the required Type of ECP is not available to be selected from List II-11, the Contractor shall furnish a more substantial ECP from List II-11 without additional compensation. (For example, if a Type S3 ECP is shown to be required on the plans, and there are no Type S3 products shown in List II-11, Type S2 or Type S1 will be an acceptable substitute. Similarly, if a Type C4 ECP is shown to be required on the plans, and there are no Type C4 products shown in List II-11, Types C6, C8 or C10 will be an acceptable substitute.)

(b) Preliminary Preparation.

Prior to placement of the ECP, the area shall have been prepared in accordance with the required ground preparation, fertilizing, seeding or other required treatment. It is important that the soil surface is smooth to ensure maximum surface area contact with the ECP.

(c) Installation of ECP.

The Contractor shall submit the ECP manufacturer's installation requirements, including staple patterns for rolled ECPs, to the Engineer before beginning the installation. The ECP shall be installed in accordance with the manufacturer's requirements unless directed otherwise by the Engineer.

Rolled ECP typical installation shall be parallel to the direction of flow. There shall be an anchor trench at the top of the installation. Upstream RECPs shall overlap any downstream RECPs. Adjacent RECPS shall also be overlapped. Staples shall be placed on overlaps, at the toe of the RECP, and throughout the RECP installation to ensure the RECP is in contact with the underlying soil.

Rolled ECPs that are soil-filled permanent turf reinforcement mats will require either a temporary rolled erosion control product or sod installed on the soil surface to prevent erosion until permanent vegetation is established.

Hydraulic ECP typical installation shall be in opposing directions to provide a solid blanket of product. HECPs shall be applied by equipment that meets the recommendations of the product manufacturer. HECPs shall be applied at the rate designated by the manufacturer specific to the slope. The application rate will be verified by measuring the air dry weight {mass} per pound {kilogram} and

dividing by the surface dimensions of the area covered. HECPs should not be installed in areas subject to channelized flow or areas having a potential to flood during a local 2 year, 24 hour storm event.

(d) Protection of ECP.

The ECPs shall be protected during all construction operations. Payment will not be made for the repair or replacement of the ECPs damaged by the Contractor, or for the repair or replacement of ECPs that fail because of improper installation.

659.04 Method of Measurement.

Erosion control products (ECPs) will be measured by the square yard {square meter} of the finished surface dimensions of the area covered. Separate measurement will not be made for folds, laps, check slots, anchor slots, etc.

659.05 Basis of Payment.

(a) Unit Price Coverage.

ECPs will be paid for at the contract unit price, which shall be full compensation for the furnishing and installation of the product including all materials, equipment, tools, labor and incidentals required to complete this item of work.

(b) Payment will be made under Item No.:

659-C Erosion Control Product, Type * - per square yard {square meter}

* Type of ECP: S4, S3, S2, S1, C2, C4, C6, C8, C10

SECTION 665
TEMPORARY SOIL EROSION AND SEDIMENT CONTROL

665.01 Description.

This Section shall cover, but not limit, those items of temporary soil erosion and sediment control necessary for the management of construction stormwater discharge quality. The Contractor shall provide and maintain temporary soil erosion and sediment controls designed to protect the project site from soil erosion and adjacent property and waters from damage by sediment transport and deposition during construction. These temporary soil erosion and sediment controls shall be referred to as "Best Management Practices" (BMPs). A BMP is any procedure, process, technique, plan or device that can be utilized to enhance the control of soil erosion and sediment transport.

665.02 Materials.

(a) Temporary Seeding.

Seeds shall be furnished in accordance with the requirements given in Item 860.01(a)1. Seed mixes used for temporary seeding shall be in accordance with the following table:

TEMPORARY SEEDING	
September through December	
Annual Ryegrass	25 pounds per acre {28 kg per hectare}
Kentucky 31 Fescue	30 pounds per acre {34 kg per hectare}
Reseeding Crimson Clover	10 pounds per acre {11 kg per hectare}
January through April 15	
Kentucky 31 Fescue	30 pounds per acre {34 kg per hectare}
Reseeding Crimson Clover	30 pounds per acre {34 kg per hectare}
Annual Ryegrass	15 pounds per acre {18 kg per hectare}
April 16 through August	
Brown Top Millet	30 pounds per acre {34 kg per hectare}
Kentucky 31 Fescue	30 pounds per acre {34 kg per hectare}
Hulled Bermuda Grass	10 pounds per acre {11 kg per hectare}

(b) Temporary Mulching.

Temporary mulching materials shall conform to the requirements given in Article 860.03 for Mulching Material.

(c) Temporary Pipe.

Temporary pipe may be constructed of any type of material that will be suitable for the required work. The inside diameter of the pipe shall be selected by the Contractor based on expected flows and shall be a minimum of 12 inches {300 mm} or as shown on the plans. End treatments, joint sections, and tees shall also be of materials and sizes that are suitable for the required work. Anchors shall be installed when required to keep the pipe in place.

(d) Polyethylene.

Polyethylene sheets may be of any size or color capable of serving the purpose intended provided it is of at least 4 mil {0.1 mm} in thickness.

(e) Temporary Coarse Aggregate.

Temporary coarse aggregate shall be either stone or concrete from the demolition of structures on the Right of Way.

Stone aggregate for stabilized construction entrances and temporary access roads to sedimentation basins shall meet the requirements for ALDOT Number 1 coarse aggregate given in Section 801. Concrete from the demolition of structures shall meet the gradation requirements for ALDOT Number 1 coarse aggregate given in Section 801. Reinforcing steel shall be removed from the concrete used for temporary coarse aggregate.

Stone aggregate for other erosion and sediment control purposes shall be the size shown on the plans and shall meet the requirements given in Section 801.

(f) Temporary Riprap.

Unless shown otherwise on the plans, temporary riprap shall be either stone or concrete from the demolition of structures on the Right of Way. Stone riprap shall meet the requirements for Class 2 riprap given in Section 814. Concrete from the demolition of structures shall meet the size and weight requirements given for Class 2 riprap in Section 814. Reinforcing steel shall be cut flush with the surfaces of the demolished concrete. The geotextile used for both underlayment and as a choker shall meet the requirements of AASHTO M288 for Permanent Erosion Control Geotextile, Class 1. A list of geotextile materials acceptable for use in this application (List II-3 "GEOTEXTILES") is given in the ALDOT's MSDSAR manual. Choker stone shall meet the requirements of Section 801.

(g) Hay Bales.

Bales may be either hay or straw containing 5 cubic feet {0.14 m^3} of material and having a weight {mass} of not less than 35 pounds {16 kg} with a minimum length of 3 feet {0.9 m}.

(h) Sand Bags.

Bags may be cotton, burlap, woven polypropylene, polyethylene, polyamide fabric or other material that will adequately confine the aggregate content for the duration of the use of the bag. Bags shall be filled with sand, limestone screenings or aggregate that is smaller than ALDOT #78. Fill material shall be selected by the Contractor based on the required bag application. Each filled bag shall have minimum dimensions of 18" x 12" x 3" {450 mm x 305 mm x 75 mm} and shall have a minimum weight {mass} of 30 pounds {13 kg}.

(i) Silt Fence.

Silt fence shall be a geotextile filter supported between metal posts with a woven wire mesh backing as shown on the plans. Posts shall be strong enough to provide and retain the fence configuration shown on the plans while being subjected to loading of silt, water and debris.

Silt fence shall meet the requirements given in Section 810 and AASHTO M 288 as supplemented by the following requirements:

a. The minimum fence height shall be 24 inches {61.0 cm} with a T-post weight of at least 1.25 lbs/ft {1.9 kg/m}, and trenches should be offset by 6 in. {15.2 cm}. At the toe of a slope, silt fence(s) should be installed at a minimum distance of 6 ft {1.8 m} to provide an adequate storage volume. For concentrated impoundments, T-post spacing should be reduced to 5 ft {1.5 m} with the incorporation of a dewatering weir. The dewatering weir and all associated items and labor shall be a subsidiary obligation of the silt fence.
   - The support backing for the geotextile shall be 14 gage steel woven wire mesh. The vertical spacing of the wire in the mesh shall be 6 {150 mm} inches. The minimum horizontal spacing of the wires shall be 6 inches {150 mm} and the maximum horizontal spacing shall be 12 inches {300 mm}. Geotextile ring fasteners shall have a spacing of 1 ft {0.3 m} on-center, and the filter fabric must be looped over the T-posts.
   - The geotextile filter shall be either a non-woven geotextile or a woven geotextile composed of monofilament yarns.

A list of geotextile materials acceptable for use in this application (List II-3 "GEOTEXTILES") is given in the ALDOT's MSDSAR manual.

(j) Wattles.

A wattle shall be a tubular shaped product specifically manufactured for erosion and sediment control. Biodegradable wattles shall be manufactured using interwoven biodegradable plant material such as straw, coir, or wood shavings in biodegradable or photodegradable netting that is of sufficient strength to resist damage during handling, installation and use. Wattles manufactured using non-biodegradable materials shall be completely removed from the project when no longer required or useful. Disposal shall be in accordance with recommendations from the wattle manufacturer.

The required minimum diameter of the wattle shall be determined based upon its intended application and shall be as follows unless shown otherwise on the plans. When installed for the purposes of slowing sheet flow or by interrupting the lengths of longer slopes (slopes longer than 50 feet {15 m} along the vertical face) that are 3:1 or steeper, the minimum diameter of the wattle shall be 9 inches {230 mm}. Slope interrupters shall be installed perpendicular to the slope at a maximum distance of 25 feet apart along the vertical face of the slope. Slope interrupters shall only be installed in conjunction with temporary or permanent seed and mulching with no geotextile underlayment. For all other applications, including perimeter sediment barriers, the minimum diameter of the wattle shall be 20

inches {500 mm}. Wattles of smaller than required diameter may be provided as a stacked installation in accordance with manufacturer recommendations for stacking if the total height of the installation is at least 20 inches {500 mm}. The diameter or height will be verified by measuring the wattle after installation. Wattles installed in a ditch check application shall have a geotextile underlayment that shall meet the requirements of AASHTO M288 for Permanent Erosion Control Geotextile, Class 1. A list of geotextile materials acceptable for use in this application (List II-3 "GEOTEXTILES") is given in the ALDOT's MSDSAR manual. A geotextile underlayment is not required if the ditch is otherwise lined with materials such as rolled erosion control product, sod, or established permanent vegetation.

A list of acceptable manufactured wattle products (LIST II-24 "TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL PRODUCTS") is given in the ALDOT's MSDSAR manual.

(k) Brush Barrier.

Brush Barriers shall be constructed of selected brush, limbs and small trees from the clearing operations. The geotextile used for both underlayment and as a choker shall meet the requirements of AASHTO M288 for Permanent Erosion Control Geotextile, Class 1. A list of geotextile materials acceptable for use in this application (LIST II-3 "GEOTEXTILES") is given in the ALDOT's MSDSAR manual.

(l) Manufactured Inlet Protection Device.

Manufactured Inlet Protection Devices shall be provided in accordance with requirements shown on the plans. Manufactured inlet protection devices shall consist of filter fabric held in place by a rigid frame. The frame shall be strong enough to support the stormwater flow and weight of any sediment that accumulates on the filter. The manufactured inlet protection device shall have an overflow feature to allow the passage of water during high flow conditions. The filter fabric shall have the following properties:

- Minimum Tensile Strength (Machine Direction) of 80 pounds {355 Newtons} (ASTM D 4632);
- Minimum Permittivity of 0.05 sec^{-1} (ASTM D 4491);
- Maximum Apparent Opening Size of US Std #30 sieve {0.60 mm} (ASTM D 4751);
- Minimum UV Stability of 70% (ASTM D 4355 at 500 hours).

A list of acceptable manufactured inlet protection devices (LIST II-24 "TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL PRODUCTS") is given in the ALDOT's MSDSAR manual.

(m) Floating Basin Boom.

Floating basin booms shall consist of a reinforced fabric attached on the upper side to floatation members and ballasted on the lower side with chains or weights to form a bottom-tensioned floating curtain boom. Floating basin booms shall be devices manufactured specifically for use in containing sediment suspended in water.

All materials used in the floating basin boom shall comply with the requirements shown on the plan details and the manufacturer's recommendations for the intended application.

The floatation members shall be made of foam with a minimum diameter of 6 inches {150 mm} or as shown on the plans. The skirt depth below the foam floatation shall be a minimum of 5 feet {1.5 meters} or as shown on the plans. The ballast shall be galvanized proof coil chains or other acceptable weights capable of retaining the skirt in a vertical position. The boom shall be Yellow or International Orange in color.

Anchors capable of holding the floating basin boom in place shall be made of a material recommended by the manufacturer.

(n) Sedimentation Basins.

Components of sedimentation basins shall meet the requirements shown on the plans. Materials for the construction of the sedimentation basins shall be selected from the lists in the Department's "Materials, Sources and Devices with Special Acceptance Requirements" if lists are available for the materials. If lists are not available, materials shall be provided in accordance with all applicable Department specifications and shall be of a quality that enables the sedimentation basin to function as intended for the duration of the need of the sedimentation basin.

The Contractor shall submit a description of all of the materials proposed for the construction of the sedimentation basins. The proposed list of materials shall be submitted with the submittal of the Stormwater Management Plan (SWMP) that is described in Subarticle 108.04(b).

(o) Flow Baffles.

Flow Baffles shall be a rolled erosion control product supported between posts with a wire mesh backing as shown on the plans. The posts and wire mesh shall meet the same requirements as given for

silt fence. The rolled erosion control product shall consist of 100 % coconut (coir) fibers and meet the following requirements:

- Minimum Weight of 20 ounces per square yard {678 grams per square meter} (ASTM D 5261);
- Open Area of 50% as determined by physical measurement.

A list of materials acceptable for use in this application (List II-24 "TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL PRODUCTS") is given in the ALDOT's MSDSAR manual.

(p) Basin Dewatering Devices.

Basin Dewatering Devices shall be a product or structure that withdraws water from the surface of the basin and meets the requirements that are shown on the plans. A list of acceptable basin dewatering devices- (List II-24 "TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL PRODUCTS") is given in the ALDOT's MSDSAR manual.

665.03 Construction Requirements.

(a) Erosion Control and Runoff Conveyance.

1. Temporary Seeding and Mulching.
   a. Inspection to Evaluate Temporary Stabilization.
      The project shall be inspected in accordance with the requirements given in Item 107.21(d)2. Areas of the project not undergoing active construction shall be evaluated for temporary stabilization requirements.
   b. Temporary Mulching Only.
      At locations where final grading should be completed within 60 calendar days, all bare ground shall be stabilized with temporary mulching applied by either hydraulic or conventional methods at a rate of no less than 3.0 tons per acre. Temporary stabilization measures shall be initiated by the end of the next business day, following the day when construction activities will temporarily cease for more than 7 days.
   c. Temporary Seeding and Mulching.
      At locations where final grading will not be completed within 60 calendar days, all bare ground shall be stabilized with temporary seeding and mulching. Temporary stabilization measures shall be initiated by the end of the next business day, following the day when construction activities will temporarily cease for more than 60 days.
      Ground preparation will not be required for temporary seeding and temporary mulching except as follows. Areas to be seeded temporarily shall be left in a rough graded condition. Areas that are smooth or hard shall be lightly scarified with scarifying teeth or some other acceptable method, running perpendicular to the direction of water flow. The intent of this scarifying is to obtain a rough area to hold seed and prevent the formation of rills and gulleys. Areas where sight distances must be maintained shall be bladed smooth. All debris in these areas shall be removed to allow mowing.
      Application of 1000 pounds {1120 kg} of 8-8-8 fertilizer per acre {hectare} shall be applied by either hydraulic or conventional methods. Seeding and mulching shall also be applied by either hydraulic or conventional methods at a rate of no less than 2.0 tons per acre, separately or concurrently with fertilizer.
   d. Anchoring of Temporary Mulching near Traffic and Streams.
      Temporary mulch within 10 feet {3 meters} of traffic shall be anchored by either crimping, the application of a tackifier adhesive, or the installation of a mulch control netting in accordance with the requirements given in Section 656. Temporary mulch within 10 feet {3 meters} of live streams shall be anchored by either crimping or the installation of a mulch control netting in accordance with the requirements given in Section 656.
   e. Acceptance of Temporary Seeding and Mulching.
      Full payment for Temporary Mulching will be made after application of the mulch in accordance with the requirements given in Section 656. Payment for Temporary Seeding will be made in full upon satisfactory application. Acceptance of the Temporary Seeding item requires a cover of living plants capable of effectively preventing soil erosion until such time that permanent soil erosion prevention measures can be installed.
2. Polyethylene.
   Polyethylene sheets shall be placed to eliminate soil erosion on the surfaces of slopes, berms, ditches, and at other locations shown on the plans, accepted SWMP, or as directed by the Engineer.

The sheets shall be installed flat and securely anchored to the ground after the ground has been cleared of all objects that may tear the sheets. Upstream sheets shall overlap downstream sheets a minimum of 6 inches {150 mm}. Anchors are considered incidental to this work.

3. Temporary Earth Berms.
   Temporary earth berms shall be constructed at the top of cut or fill sections and at other locations where the diversion of water is required. Stream diversion is addressed in Sections 107 and 524. Temporary earth berms shall be constructed at locations shown on the plans, the approved SWMP or as directed by the Engineer. Temporary earth berms may be plated with polyethylene or aggregate. The height of the berms shall be a minimum of 2 feet {600 mm} after compaction. The width of the top of the berm shall be 2 feet {600 mm} with 2:1 side slopes. The construction of berms is encouraged and berms of a very temporary nature may be constructed by the windrowing of material. There will be no direct payment for berms not meeting requirements given in this Section and the requirements shown in the plans. If Pay Item 665-T is not included in the contract, the cost of constructing Temporary Earth Berms will be considered incidental to the grading operation.
4. Temporary Pipe.
   Temporary Pipe shall be sized to carry the anticipated volumes of flow and shall be installed as permitted by the Engineer or as shown on the plans. The length shall be as determined by the Engineer. Temporary pipes may be placed without the bedding requirements required for the installation of permanent pipe. Pipes shall be securely anchored. Any required tees or joint sections are considered incidental to the work. End treatments shall be installed in a manner to allow the pipe to function effectively.
5. Stabilized Construction Entrance.
   Stabilized construction entrances shall be constructed of materials, at the locations, and to the dimensions shown on the plans, as modified in the accepted SWMP or as directed by the Engineer. The Contractor shall be responsible for maintaining the construction entrance to prevent sediment tracking.
6. Dust Control.
   The contractor shall prevent visible dust from leaving the project site by the use of water, dust control agents, or other effective means as approved and directed by the Engineer. Dust control shall be considered ineffective where dust creates a potentially unsafe condition, public nuisance or condition endangering the value, utility or appearance of any property. There will be no direct compensation for dust control.
7. Slope Tracking.
   Slope tracking or the surface roughening of slopes shall be accomplished by the walking of tracked equipment upslope and downslope (not along the slope) over the entire erodible area. Slope tracking shall be performed on slopes that are 4:1 or steeper and longer than 20 feet. Slope tracking shall be performed immediately after the final shaping of the slope.

(b) Sediment Control.

1. Placement of Sediment Control BMPs in Streams.
   Sediment control BMPs shall not be placed in a live stream for the purpose of capturing upland sediment. Additionally, no live stream shall be dammed or ponded for the purpose of water access and usage. Secondary sediment control BMPs in the form of Floating Basin Booms may be placed in live streams parallel to the flow along the bank only as shown in the plans or at the direction of the Engineer.
2. Ditch Checks.
   Ditch checks shall be constructed at locations shown on the plans, the accepted SWMP or as directed by the Engineer. Materials and products used to construct ditch checks may include sand bags, hay bales, wattles with geotextile, silt fence, silt dikes, or rock with geotextile. The materials used shall be installed in accordance with the requirements given in this Section, the requirements shown on the plans and the manufacturer's recommendations for manufactured products.
3. Sediment Barriers.
   Sediment barriers shall be constructed at the locations shown on the plans, the accepted SWMP or where directed by the Engineer to intercept sheet flow runoff and to treat concrete washout wastewater. Sediment barriers utilized for sediment control adjacent to the construction limits or

a live steam shall be installed prior to beginning any grubbing work in the contributing drainage area. Types of sediment barrier may include silt fence, hay bales, sand bags, silt dikes or wattles. The materials used shall be installed in accordance with the requirements given in this Section, the requirements shown on the plans and the manufacturer's recommendations for manufactured products.

4. Brush Barriers.
   Brush barriers shall be constructed at the locations shown on the plans, the approved SWMP or where directed or permitted by the Engineer. Brush barriers may be constructed in rural areas where natural ground is sloping away from the project. Brush barriers shall be compacted to a relatively dense barrier with uniform heights of between 3 and 5 feet and base widths of between 5 and 10 feet {between 1.5 m and 3.0 m} perpendicular to the flow. Geotextile underlayment and geotextile choker shall be securely attached to the faces of brush barriers. These barriers shall be removed when no longer needed unless otherwise directed by the Engineer.
5. Inlet Protection.
   Inlet protection shall be installed at locations and in accordance with requirements shown on the plans for the appropriate stages of construction or as directed by the Engineer. Approved manufactured products shall be installed as per manufacturer's recommendations. Site constructed protection may include wattles, silt fence, sand bags, drainage sumps or other practices shown on the plans or directed by the Engineer. In no case will in-structure protection be allowed.
   Stage 1 Inlet Protection shall be installed after the outflow drainage has been installed and prior to the construction of the inlet. Stage 1 Inlet Protection shall be ditch checks and/or sediment barriers and shall allow sufficient access to continue inlet construction.
   Stage 2 Inlet Protection shall be installed after the inlet is constructed and prior to backfilling. Stage 2 Inlet Protection shall be a sediment barrier. Hay bales are not acceptable for use during this stage of inlet construction.
   Stage 3 Protection is required after inlets are completed through grate installation and prior to complete stabilization of the area surrounding the inlet. Stage 3 Inlet Protection for drop inlets shall be in accordance with requirements and details shown on the plans. Stage 3 Inlet Protection shall be a manufactured inlet protection device or constructed with coarse aggregate, wattles or sand bags. Hay bales are not acceptable for use during this stage of inlet construction.
   Stage 4 Inlet Protection for drop inlets shall be in accordance with requirements shown on the plans. Stage 4 Inlet Protection shall be a manufactured inlet protection device or constructed with hay bales, wattles or sandbags stacked at least three bags high. Hay bales, sand bags and wattles shall be used as a barrier along the perimeter of the slope paved apron as shown on the plans for a minimum distance of 20 feet {6.1 m}. If impervious surfaces extend beyond 20 feet {6.1 m}, sand bags shall be used as a barrier across the surface 20 feet {6.1 m} from the inlet. Stage 4 Protection will only be required where there is surrounding impervious surfaces that may receive sediment laden runoff.
   All inlet protection installations shall be constructed to ensure that runoff does not bypass the inlet. Components of inlet protection may be reused on future installations provided the condition meets the material requirements given in this Section.
6. Outlet Protection.
   Outlet protection required by the plans or directed by the Engineer shall be installed in accordance with the details shown on the plans as soon as practicable after the completion of the drainage structures.
7. Drainage Sumps.
   Temporary drainage sumps shall be constructed as shown on the plans and in locations directed or permitted by the Engineer using the Erosion and Sediment Control Plan (ESCP) as guidance for the location. In general, the shape should be rectangular at the surface with the longer dimension parallel to the flow of water. The minimum volume shall be that shown on the plans. Sumps may be constructed with larger volumes as directed and permitted by the Engineer.
   Construction of the sumps shall be accomplished by methods and equipment suitable for the purpose and acceptable to the Engineer. The sump may be supplemented by the use of a ditch check, temporary pipe, polyethylene or other temporary items shown on the plans or approved by the Engineer.
   When the sump is deemed of no further use, it shall be backfilled with suitable material and compacted as directed and the area dressed and shaped to blend with the adjacent natural ground.

8. Sedimentation Basins.
   Sedimentation basins shall be constructed in accordance with the details shown on the plans and at the locations shown on the plans or as directed by the Engineer. Sedimentation basins shall be constructed prior to beginning grading operations in the contributing drainage area. Where sedimentation basins are to be constructed in locations where permanent ditches are required, the required ditch lines and grades shall be utilized for the construction of the sedimentation basins. During removal of the sedimentation basin, aggregate used to construct the sedimentation basin may remain in the ditch as a permanent lining. Sedimentation basins are designed to allow the removal of sediment and turbidity from stormwater runoff by the flocculation and settlement of suspended particles. The removal of sediment and turbidity shall be accomplished by the retention of stormwater runoff in the basin for a period of time before completely draining. In no case shall sediment be allowed to exceed one third of the height of the forebay or drainage sump adjacent to the inlet of the basin.
   Access roads to facilitate maintenance efforts shall be constructed of materials, at the locations, and to the dimensions shown on the plans, as modified in the accepted SWMP or as directed by the Engineer. The Contractor shall be responsible for maintaining the access road until directed by the Engineer to perform basin removal or retrofit. The Contractor shall take care during removal of accumulated sediment to not puncture the basin liner. The Contractor shall also take care during removal or retrofit of the sedimentation basin to not excavate past the original basin bottom elevation unless otherwise directed by the Engineer.
9. Flow Baffles.
   Flow Baffles shall be installed in sedimentation basins or ditch applications as required by the plans to reduce the velocity of stormwater runoff. They shall be installed in accordance with the details shown on the plans.
10. Basin Dewatering Devices.
    Basin Dewatering Devices shall be installed in sedimentation basins in accordance with the details shown on the plans. Each device shall be capable of dewatering the full capacity of the basin over a period of 72 hours unless otherwise specified in the plans. Each device shall have a shutoff valve on the outlet pipe that should remain closed until discharges meet state water quality standards and the requirements of the ADEM NPDES General Permit.
11. Floating Basin Booms.
    Floating basin booms shall be installed only for secondary sediment containment or to prevent the migration of sediment within a water body. Floating Basin Booms shall be installed at the locations shown on the plans, the accepted SWMP or as directed by the Engineer. Installation shall be as shown on the plans and as recommended by the manufacturer. Basin Booms shall not be installed in locations where they will not be effective or in conditions where continuous maintenance is not practical.
12. Sediment Retention Barrier.
    Sediment retention barrier shall be constructed at the locations shown on the plans, the accepted SWMP or where directed by the Engineer to intercept sheet flow runoff and concentrated flows. Sediment retention barriers utilized for sediment control adjacent to live steams shall be installed prior to beginning any grubbing work in the contributing drainage area. The sediment retention barrier shall be comprised of two parallel rows of silt fence with two rows of parallel hay bales contained within. The materials used shall be installed in accordance with the requirements given in this Section, the requirements shown on the plans, and the Special Drawing.

(c) Maintenance and Removal Requirements.

The Contractor shall be responsible for daily inspection, daily preventative maintenance and immediate repairs of all temporary soil erosion and sediment control items. The Contractor shall maintain on-site, or have readily available, sufficient erosion and sediment control devices and materials to perform maintenance, repairs, and prepare the site for impending rain events. All BMPs which capture sediment shall be cleaned by the removal and disposal of sediment when the holding capacity reaches one third full and when necessary for the BMP to remain functional. Any offsite sediment loss shall be removed as directed by the Engineer. Any offsite tracking of sediment onto public roadways shall be removed by the end of the same business day, and construction entrances shall be stabilized as needed. Sediment removed during the maintenance of BMPs or collected from off-site cleanup should be reincorporated into the site or disposed of as approved by the Engineer.

All temporary soil erosion and sediment control BMPs shall be removed from the project when no longer needed unless shown otherwise on the plans, the accepted SWMP, or directed or permitted by the Engineer. Removal of temporary controls shall be only after permanent controls are in place and functioning properly. The removal of all controls shall be followed by the immediate stabilization of the area as directed by the Engineer.

665.04 Method of Measurement.

(a) Temporary Seeding.
Temporary Seeding (Item 665-A) will be measured in acres {hectares} computed from surface measurements taken parallel to the treated surface. Computations will be to the nearest 0.1 of an acre {0.01 ha}.

(b) Temporary Mulching.
Temporary Mulching (Item 665-B) will be measured in units of tons {metric tons}. Proof of material weight shall be provided to the Engineer by the Contractor upon delivery of the materials to the project site. The weight ticket shall contain all items required in Subarticle 109.01(h)2. with the exception of the name of the producer and the truck number.

(c) Temporary Pipe.
Temporary Pipe (Item 665-C) will be measured in linear feet {meters} to the nearest foot {0.1 m} with measurements taken along the center line of the pipe.

(d) Polyethylene.
Polyethylene sheets (Item 665-E) will be measured in square yards {square meters} computed from surface measurements of the area treated. Computations will be to the nearest 0.1 square yard {0.1 square meter}.

(e) Temporary Earth Berms.
Temporary Earth Berms (Item 665-T) will be measured in linear feet {meters} to the nearest foot {0.1 meter} with measurements taken along the top of the berm. Aggregate or polyethylene protection will be paid separately if directed or permitted by the Engineer. There will be no direct payment for berms not meeting requirements given in this Section or shown in the plans.

(f) Temporary Coarse Aggregate.
Temporary Coarse Aggregate (Item 665-N) will be measured in units of tons {metric tons}.

(g) Temporary Riprap.
Temporary Riprap (Item 665-I) will be measured in units of tons {metric tons}. Geotextile installed both as underlayment and as a choker for riprap ditch checks shall be measured separately and payment made in accordance with the requirements given in Section 610. If provided in the plans, stone used for choking shall be measured separately and paid in accordance with the appropriate pay item.

(h) Hay Bales.
Hay Bales (Item 665-F) will be measured per each bale unless used in Stage 4 Inlet Protection.

(i) Sand Bags.
Sand Bags (Item 665-G) will be measured per each bag unless used in Stage 3 or 4 Inlet Protection.

(j) Silt Fence and Silt Fence Removal.
Silt Fence (Item 665-J) and Silt Fence Removal (Item 665-O) will be measured along the top of the fence fabric in linear feet {meters} to the nearest foot {0.1 m}.

(k) Wattles.
Wattles (Item 665-Q) will be measured after installation in linear feet {meters} to the nearest 0.1 foot {0.01 meter} with measurements taken along the top of the wattle installation unless used in Stage 3 or 4 Inlet Protection. Wattles installed as sediment barriers or ditch checks shall have a diameter of 20 inches {500 mm} verified by measurement of the circumference anywhere along the length of the wattle which shall be at least 56 inches {1.42 m}. Payment for stacked wattles will be made at the contract price for a single 20 inch {500 mm} diameter wattle. Wattles installed as slope interrupters shall have a diameter of 9 inches {230 mm} verified by measurement of the circumference anywhere along the length of the wattle which shall be at least 25 inches {0.64 m}. Field measurements will be used to verify lengths shown on shipping documentation. The lesser of the two lengths will be used for payment.Geotextile installed as underlayment for wattle ditch checks shall be measured separately and payment made in accordance with the requirements given in Section 610.

(l) **Sediment Retention Barriere** Sediment Retention Barrier (Item 665-M) will not be paid for as individual components but will be measured along the top of the barrier in linear feet {meters} to the nearest foot {0.1 m}.

(m) Brush Barriers.

Brush Barriers (Item 665-S) will be measured in linear feet {meters} to the nearest foot {0.1 meter} with measurements taken along the top of the barrier. Geotextile installed both as underlayment and as a choker will be measured separately and payment made in accordance with the requirements given in Section 610.

(n) Inlet Protection.

Materials used to construct Stage 1 and 2 Inlet Protection will be measured for payment as appropriate for items such as silt fence, wattles, hay bales, etc. This also applies to curb inlet protection necessary beyond Stage 2.

Stages 3 and 4 Inlet Protection (Item 665-P) for drop inlets will be measured per each stage of each inlet protected if protected in accordance with the details shown on the plans.

(o) Drainage Sump Excavation.

Drainage Sump Excavation (Item 665-K) will be measured in cubic yards {cubic meters} computed from dimensions of the sump size and depth approved by the Engineer. Material removed during sump maintenance operations will be measured for payment as Drainage Sump Excavation to the nearest cubic yard {0.1 cubic meter}. No measurement will be made for material used as backfill when the sump is closed.

Removal of sediment collected by sedimentation basins, sediment retention barriers, ditch checks and inlet protection will be measured as drainage sump excavation if soil erosion is being prevented to the maximum extent practicable.

If the proposal does not contain this item, measurement and payment will be made under the Item of Unclassified Excavation. Material removed will not be paid as muck excavation regardless of the consistency.

(p) Sedimentation Basins.

Each component and work item required for the construction of a Sedimentation Basin will be measured individually for payment. Excavation and embankment will be measured as Unclassified Excavation. Removal of captured sediment will be measured as Drainage Sump Excavation. Typical items required to construct the sedimentation basin may include unclassified excavation, aggregates, riprap, filter fabric, polyethylene, flow baffles, rolled erosion control products, seeding, basin dewatering device, temporary pipe, etc. Access roads to sedimentation basins, as shown in the plans or as directed by the Engineer, will be measured separately and payment made as Temporary Coarse Aggregate (Item 665-N) and geotextile in accordance with the requirements given in Section 610, unless otherwise specified in the plans. No measurement will be made for access roads installed without the approval of the Engineer.

(q) Flow Baffles.

Flow Baffles (Item 665-H) will be measured along the top of the baffle material in linear feet {meters} to the nearest foot {0.1 m}.

(r) Basin Dewatering Devices.

Basin Dewatering Devices (Item 665-X) will be measured per each. Elevated device rest, outlet pipes, valves, and end treatments serving the basin dewatering device are considered to be a part of the device and will not be measured separately for payment.

(s) Temporary Pipe End Treatments.

Temporary Pipe End Treatments (Item 665-D) will be measured per each.

(t) Floating Basin Booms.

Floating Basin Booms (Item 665-L) will be measured in linear feet {meters} to the nearest 0.1 foot {0.01 meter} with measurements taken along the top line of the boom.

665.05 Basis of Payment.

(a) Unit Price Coverage.

The unit price for all temporary erosion and sediment control items, except drainage sumps and silt fence, shall be full compensation for furnishing all materials unless otherwise noted, the construction and installation of the materials into complete erosion or sediment control measures, and

shall include all equipment, tools, labor and incidentals necessary to complete the work, to perform maintenance to keep work in an acceptable condition, and to remove the items when no longer needed as directed by the Engineer. The excavation of sediment collected by drainage sumps, ditch checks, sediment barriers, sediment retention barriers, and other sediment control BMPs will be considered for payment as Drainage Sump Excavation as long as erosion is being controlled to the maximum extent practicable. Direct payment will be made for the removal of silt fence.

Payment for Stage 3 and Stage 4 Inlet Protection shall include the installation and maintenance of all items at quantities shown on the plans as being required or permitted.

Payment for sedimentation basins will be made for individual components and work items required for construction and shall be full compensation for the installation, maintenance and removal of all components of the sedimentation basin as constructed in accordance with requirements shown on the plans. Payment for access roads to sedimentation basins will be made for individual components required for the construction and shall be full compensation for the installation, maintenance and removal when no longer needed as directed by the Engineer.

In the event that additional temporary or permanent erosion and sediment control measures become necessary due to the negligence or actions of the Contractor, or for the contractor's convenience the temporary work shall be performed at the Contractor's expense. Temporary or permanent erosion control measures installed in previously stabilized areas that are necessary due to required work sequencing will be paid as outlined in this section.

Payment will not be made for any temporary erosion or sediment control measures installed due to the methods chosen by the Contractor to perform the required work. Measures include those utilized for convenience, for access to the work (work bridges or platforms, stream crossings, access roads, haul roads), those utilized for treating or handling water in order to assist the Contractor in the execution of the work (diversions, dewatering, conveyances) or those utilized for protecting the Contractor's work or staging areas. Payment will also not be made for measures installed outside of the right of way or easements such as material pits, haul or access roads, plant sites, and staging areas.

(b) Payment will be made under Item No.:

665-A Temporary Seeding - per acre {hectare}
665-B Temporary Mulching - per ton {metric ton}
665-C Temporary Pipe - per linear foot {meter}
665-D Temporary Pipe End Treatment – per each
665-E Polyethylene - per square yard {square meter}
665-F Hay Bales - per each
665-G Sand Bags - per each
665-H Flow Baffle – per linear foot {meter}
665-I Temporary Riprap, Class ____ - per ton {metric ton}
665-J Silt Fence - per linear foot {meter}
665-K Drainage Sump Excavation - per cubic yard {cubic meter}
665-L Floating Basin Boom - per linear foot {meter}
665-M Sediment Retention Barrier – per linear foot {meter}
665-N Temporary Coarse Aggregate, ALDOT Number ____ - per ton {metric ton}
665-O Silt Fence Removal - per linear foot {meter}
665-P Inlet Protection, Stage 3 or 4 – per each
665-Q Wattle (size) - per linear foot {meter}
665-S Brush Barrier - per linear foot {meter}
665-T Temporary Earth Berm - per linear foot {meter}
665-X Basin Dewatering Device – per each

SECTION 666
PEST CONTROL

666.01 Description.

The work covered by this Section shall consist of furnishing and applying designated chemicals to control certain destructive pests, namely, Armyworm, Fall Armyworm, Cutworm, Spittlebug, White Grubs and Pine Bark Beetles.

Because of the destructive nature of the action of these pests to trees and ground cover with the possible result of erosion and ultimate siltation of areas, control of these pests is a necessity.

Both the Engineer and the Contractor have the responsibility of continually observing the planted areas for possible pest damage. The Contractor should, upon observing any of these pests, report such to the Engineer, both verbally and in writing.

The Engineer will verify any reports of this type of pest and direct appropriate treatment to be taken.

The following brief descriptions are provided for ease in recognizing these pests:

Armyworm: A medium size caterpillar of dark green color with white stripes on sides and down the middle of the back, Size, approximately 1 inch {25 mm} in length. This worm usually feeds only at night destroying foliage.

Fall Armyworm: A medium size caterpillar of dark green color with white stripes on sides and down the middle of the back with a distinctive yellow inverted "Y" on the head capsule. Size, approximately 1 inch {25 mm}. This worm will feed both day and night destroying foliage.

Cutworm: A fat bodied caterpillar with a greasy appearance, color mostly greybrown or mottled on top and lighter color underneath. Size, approximately 1 to 2 inches {25 to 50 mm} in length when full grown. This worm hides during the day and feeds at night, destroying foliage.

Spittlebug: Most easily identified by a frothy mass of plant juice at the forks of plant stems resembling spittle. This pest lives inside the spittle mass.

White Grubs: The immature (larval) stage of June or May beetles. Length, 0.5 to 1.5 inches {13 to 38 mm}, have three pairs of legs near the head, and characteristically rest in a C-shaped position. Their heads and rear ends are brown. Green June Beetle grubs crawl on their backs with their legs up.

Pine Bark Beetles: These beetles are distinguished from other bark beetles in that the rearward end of the abdomen is scooped out and spined (4 to 6 spines on each side). The southern pine beetle and black turpentine beetle have a more rounded abdomen. The black turpentine beetle is the larger of the two, being about 1/4 inch {6 mm} long . The southern pine beetle is about 1/8 {3mm} inch long. All of the pine bark beetles are roughly cylindrical and are dark brown to black.

666.02 Material.

The treatments to be used under this Section shall be as per the current Alabama Pesticide Handbook or Guidelines as may be issued by the Alabama Cooperative Extension Service. As new pesticide materials are approved by the State Department of Agriculture and Industries, the Bureau of Construction may allow their use upon written request by the Contractor.

All chemicals shall be a product of a reputable manufacturer, processed in accordance with all State and Federal regulations for such manufacture.

Restricted Use of Insecticides

Whenever the State Department of Agriculture and Industries or other Federal or State agency restricts the use of any insecticide on highway right-of-way, its initial or continued use shall require the approval of the Construction Engineer. It is illegal to place herbicides in a manner that is not consistent with the requirements shown on the insecticide container labeling.

666.03 Construction Requirements.

(a) General.

The Engineer after verification of the pest occurrence and identification of the type pest shall direct the use of treatments as noted in Article 666.02 in accordance with the following:

Equipment used in the application shall be designed for the application method to be used and approved by the Engineer for use.

The application of pesticides shall be performed by or under the direct supervision of a licensed pesticide applicator, licensed in the area of right-of-way pest control. Uniform coverage is required. If uniform coverage is not obtained, the Contractor shall retreat the entire area in such a manner that uniform coverage is obtained. Retreatment because of uneven coverage shall be without additional cost to the State. Retreatment shall not be performed within seven days of the original treatment. All treatments shall be at the direction of the Engineer.

In all treatments, dilutions of liquids and technical material dosage applied shall follow label instructions, these Specifications and be verified by the Engineer.

Any change to the dilution rates of a specific chemical or the substitution of chemicals other than those meeting the requirements of Article 666.02 must have prior written approval of the Construction Engineer and any such approved change must be without additional cost to the State.

(b) Safeguards.

Safeguards in applying insecticides are the responsibility of the Contractor, and he shall be responsible for any damage to humans or wildlife incurred during application operations.

The following are minimum basic safeguards to be observed.

1. Avoid drift of any spray or dust material on adjacent property.
2. Confine Sprays or Dust to areas that will not contaminate streams or lakes adjacent to the Right-of-Way.
3. Carbaryl (Sevin) and Malathion are highly toxic to bees; therefore, if spraying or dusting is carried out near bee yards, give advance notice to beekeeper so that he can protect his bees.
4. In general, spraying with ground equipment is the least hazardous to wildlife; therefore, all treatment shall be applied by approved ground driven equipment unless approved otherwise by the Engineer.
5. Operators of spraying or dusting equipment must wear the recommended apparel for specific insecticides being applied in executing this work.
6. Only qualified personnel will be permitted to engage in this type operation. The Contractor or subcontractor shall submit, if required by the Alabama Department of Transportation, a list of the roads, railroads, or other areas that he has treated. This list must be certified by the official for whom the work was performed.
7. Normally, pesticide spraying will be restricted to roadside areas which are under construction, and subsequently, are not open to the public. However, should areas such as scenic overlooks, rest areas, etc., be ordered treated, precautions for the protection of the public must be taken; namely, by keeping pedestrians off the area until the insecticide dissipates from the turf area to a point that it is no longer an area of concern in accordance with the product labeling.

666.04 Method of Measurement.

Item 666-A will be measured in acres {hectares} computed from surface measurements taken parallel to the treated surface. Computations will be to the nearest 0.1 of an acre {0.1 ha}.

Item 666-B will be measured by the gallon {liter} of dispensed solution with measurements taken from the storage vessel before and following dispersal to determine the actual amount of solution used. Computations will be to the nearest gallon {L}.

Item 666-C will be measured by the square yard {square meter} of dispensed solution with surface measurements taken parallel to the treated surface. Computations will be to the nearest 0.1 square yard {0.1 square meter}.

666.05 Basis of Payment.

(a) Unit Price Coverage.

Completed and accepted pest control treatment measured as noted above shall be full compensation for the furnishing of the respective insecticide noted, for the uniform application of the insecticide and for all materials, equipment, tools, labor and incidentals necessary for the satisfactory completion of the work.

(b) Payment will be made under Item No.:

666-A Pest Control Treatment- per acre {ha}
666-B Spot Pest Control Treatment - (*) (**) (***) (****) per gallon {L}
666-C Spot Pest Control Treatment - (*) (**) (***) (****) per square yard {square meter}

* Specify Type
** Specify Rate
*** Specify Carrier Rate of Application
**** Specify Type of Carrier

SECTION 668
PRE-EMERGENT HERBICIDE TREATMENT

668.01 Description.

This section shall cover the work of applying soil active herbicide(s) on the highway right-of-way in accordance with the plans, specifications, material label instructions, or as directed by the Engineer to control the growth of noxious weeds, brush, vines and grasses.

668.02 Materials.

Materials furnished for use in this vegetation control work shall be produced by reputable, recognized manufacturers and registered by the U.S. Environmental Protection Agency. Materials shall be licensed for use in the State of Alabama and shall be pre-qualified for use by the Alabama Department of Transportation. An approved drift control agent shall be used in all liquid broadcast applications. Adjuvants, such as, but not limited to, surfactants shall be used when called for by product label instructions of the herbicide designated on the plans or directed by the Engineer. All herbicide and related adjuvants shall be labeled for right-of-way use. Unless specified otherwise by the plans and/or proposal, potable water shall be the carrier for dispersing the herbicide. The use of herbicides other than those dispensed with a water carrier, such as granules, pellets, powders, capsules, etc., shall be placed as indicated on the product label at locations indicated on the plans, or as directed by the Engineer. Herbicides and their application rates that are approved for use on ALDOT rights-of-way may be found in the latest edition of the Addendum to "A Manual for Roadside Vegetation Management – Chapter IV" which is revised by ALDOT's Maintenance Bureau Agronomists. The type of herbicide required on the project and the required application rate will be shown on the Plans.

668.03 Construction Requirements.

(a) Equipment.

1. Equipment for Broadcast Spraying.

The Contractor shall utilize equipment in this contract that is in good working condition and is suitable and safe for accurately dispensing herbicide within the right-of-way limits of the highway and for performing the work required under this contract. The contractor shall provide sufficient equipment and accessory items necessary for efficient operation and completion of the herbicide application in the designated time limitations.

Broadcast spraying equipment shall be capable of controlling the rate of application using a computerized, calibrated sprayer. The computer module and accessory equipment shall be capable of monitoring ground speed with the ability to compensate the output volume of the spray solution to provide accurate and uniform dispensing of the spray solution to the surface area of the highway right-of-way throughout the operable speed range. The computer shall have a non-volatile memory with the ability to store and report data. Reporting capability shall include quantity of material sprayed, area treated, and hours of operation on a daily basis.

Equipment shall be capable of dispensing herbicide by either (1) tank mixed solution, or (2) chemical injection and mixing immediately prior to the distribution nozzles. In the event tank mix equipment is used, means shall be provided for constant agitation (either jet or mechanical) of the mixture during the filling and spraying operation. Each piece of equipment shall be equipped with a hand gun and nozzles capable of spreading the mixed solution uniformly, at the specified rate, over surface areas missed or inaccessible to the broadcast spraying.

Herbicide application equipment operated from the roadway or paved shoulder surface shall follow all MUTCD guidelines for a mobile operation..

Smaller motorized ground operated equipment may be used with the approval of the Engineer. This equipment may be used on smaller areas, such as landscaped areas within the limits of the right-of-way. The smaller areas are defined as the areas that are inaccessable to truck mounted and agricultural type sprayers normally used for broadcast applications from the roadway or open areas within the right-of-way. This smaller motorized ground operated equipment shall be equipped with a hand gun and/or nozzles capable of spreading the mixed solution uniformly over the area to be treated. Means shall be provided for constant agitation (either jet or mechanical) of the mixture during the filling and spraying operations.

2. Equipment for Spot Spraying.

Spot spraying by means of hand guns, backpack sprayers, portable tanks, etc., shall be capable of applying the herbicide solution at the designated plan rate or as directed by the Engineer. Herbicides placed with this type equipment shall dispense solution which contains the correct herbicide to carrier ratio. The herbicide solution shall be directed and placed on the target area to provide uniform, adequate and proper coverage.

(b) Methods of Operation.

Prior to beginning work, a conference between representatives of the Department and the Contractor will be arranged by the Department. In this meeting plans, specifications, unusual conditions, methods for marking non-sprayable areas, and other pertinent items regarding the work will be discussed. Certain "No-Spray" areas may occur; these fall within the defined limits of the spraying area as indicated by the plans and specifications. These areas are where various businesses or agencies have ornamental plantings or improved turf within the highway right-of-way and perform their own maintenance, or as directed by the Engineer. The Department will determine all non-sprayable areas.

Spraying will not be permitted when, in the opinion of the Engineer, soil, vegetation, and/or weather conditions are such that the right-of-way or the vegetation would be damaged or spraying would be ineffective.

The Contractor shall spray as close as practicable to all fixed objects, exercising extreme care not to damage trees, plants, shrubs, signs, delineators or other appurtenances which are part of the facility. Any damage caused by the Contractor's spraying operations to any tree, plant, shrub, sign, delineator or other appurtenance which is part of the facility shall be pruned, trimmed, repaired or replaced immediately by the Contractor at no cost to the Department. The Engineer will determine whether the damage shall be corrected by pruning, trimming, repair or replacement.

The Contractor shall be responsible for any damage to public or private property which may occur as a result of the spraying operation.

(c) Spraying Application Requirements.

The Contractor shall possess the appropriate license and permit required by the State of Alabama Department of Agriculture and Industries for conducting business in the State of Alabama.

All personnel directly involved in the application of the herbicide solution, to include operators and project supervisory personnel, shall be experienced in the ground application of pesticides on highway rights-of-way.

Operators and project supervisors involved with this project shall possess a commercial applicator permit issued by the State of Alabama Department of Agriculture and Industries covering the "Right-of-Way" category.

The Contractor will furnish two copies of product labels and material safety data sheets for the products used on the project. One copy of each will be furnished to the Engineer and one copy will be kept with the vehicles applying the herbicide at all times.

While spraying, care shall be exercised to prevent damage by spray drift or direct contact of herbicide to areas containing plantings of shrubs and bushes, designated wildflower areas, deciduous or evergreen trees, residential plantings, vegetable or flower gardens, any susceptible farm crops, or other desirable plants. In the event of damage to any desirable plants which includes damage or "brown-out" to low hanging limbs of trees along the right-of-way, the Contractor will correct by either replacement, pruning, trimming or compensation of any damages caused by the misapplication or drift of the herbicide solution immediately following visual recognition, verbal or written notification and/or instructions from the Engineer.

No herbicide solution shall be sprayed without a drift control agent. No spraying shall be undertaken when the wind velocity is 10mph {16 km/h} or greater.

No spraying shall be undertaken during a rain, when heavy rain is imminent, or when soil is saturated.

The Contractor shall take extreme care to ensure that herbicide does not enter any lakes, streams, ponds or wetlands.

The speed of any vehicle used to apply the herbicide solution to the highway right-of-way, shall not exceed 11 mph {18 km/h} when operated from the roadway/paved shoulder surface or 5 mph {8 km/h} when operated off the improved portion of the roadway.

The pattern of spray shall be such as to provide even, uniform coverage.

(d) Liability of Contractor.

The Contractor shall assume all liability for any damage resulting from the application of the herbicides for this project and shall hold the State of Alabama harmless from any claims arising from this damage. It is illegal to place herbicides in a manner that is not consistent with the requirements shown on the herbicide container labeling.

(e) Record of Work.

It shall be the Contractor's responsibility to "scout ahead" for each day's anticipated work. Department-furnished forms (BM-196) "Herbicide Scouting Report" shall be completed prior to the beginning of each day's work. A completed and signed copy shall be furnished to the Department's Engineer for each day's operation.

The Contractor shall account for each day's work and provide information on location, area covered, weather conditions, personnel, equipment, herbicide used, rates and productivity. This information shall be provided on the Department's "Herbicide Treatment Report", which will be provided by the Department. A completed and signed copy of this report shall also be furnished to the Department's Engineer for each day's work.

668.04 Method of Measurement.

Item 668-A will be measured in acres {hectares} computed from surface measurements taken parallel to the treated surface. Computations will be to the nearest 0.1 of an acre {0.1 ha}.

Item 668-B will be measured by the gallon {L} of dispensed solution with measurements taken from the storage vessel before and following dispersal to determine the actual amount of solution used. Computations will be to the nearest gallon {L}.

Item 668-C will be measured by the square yard {square meter} of dispensed solution with surface measurements taken parallel to the treated surface. Computations will be to the nearest 0.1 square yard {0.1 square meter}.

668.05 Basis of Payment.

(a) Unit Price Coverage.

Payment for all satisfactorily completed work of pre-emergent herbicide application as specified, measured as provided above, will be paid for at the contract bid price which shall be full compensation for furnishing all labor, equipment, herbicides, adjuvants, carrier, fuels, incidentals and liability insurance necessary to complete the work. Partial payments will be made on monthly estimates based on the percentage of the total work performed as estimated by the Engineer.

(b) Payment will be made under Item No.:

668-A Broadcast Pre-Emergent Herbicide Treatment (*) (**) (***) (****) per acre (ha)
668-B Spot Pre-Emergent Herbicide Treatment (*) (**) (***) (****) per gallon {L}
668-C Spot Pre-Emergent Herbicide Treatment (*) (**) (***) (****) per square yard {square meter}

* Specify Type of Herbicide
** Specify Rate of Herbicide Application
*** Specify Carrier Rate of Application
**** Specify Type of Carrier

SECTION 669
POST-EMERGENT HERBICIDE TREATMENT

669.01 Description

This section shall cover the work of applying contact (foliage active) herbicide(s) on the highway right-of-way in accordance with the plans, specifications, material label instructions or as directed by the Engineer to control the growth of noxious weeds, brush, vines and grasses.

669.02 Materials

Materials furnished for use in this vegetation control work shall be produced by reputable, recognized manufacturers and registered by the U.S. Environmental Protection Agency. Materials shall be licensed for use in the State of Alabama and pre-qualified for use by the Alabama Department of Transportation. An approved drift control agent shall be used in all liquid broadcast applications. Adjuvants, such as, but not limited to, surfactants shall be used when called for by product label

instructions of the herbicide designated on the plans or directed by the Engineer. All herbicide and related adjuvants shall be labeled for right-of-way use. Unless specified otherwise by the plans and/or proposal, potable water shall be the carrier for dispersing the herbicide. The use of herbicides other than those dispensed with a water carrier, such as herbicides dispensed with oil shall be placed as indicated on the product label at locations indicated on the plans, or as directed by the Engineer. Herbicides and their application rates that are approved for use on ALDOT rights-of-way may be found in the latest edition of the Addendum to "A Manual for Roadside Vegetation Management – Chapter IV" which is revised by ALDOT's Maintenance Bureau Agronomists.). The type of herbicide and the required application rate will be shown on the plans.

669.03 Construction Equipment

(a) Equipment

1. Equipment for Broadcast Spraying.

The Contractor shall utilize equipment in this contract that is in good working condition and is suitable and safe for accurately dispensing herbicide within the right-of-way limits of the highway and for performing the work required under this contract. The contractor shall provide sufficient equipment and accessory items necessary for efficient operation and completion of the herbicide application in the designated time limitations.

Broadcast spraying equipment shall be capable of controlling the rate of application using a computerized, calibrated sprayer. The computer module and accessory equipment shall be capable of monitoring ground speed with the ability to compensate the output volume of the spray solution to provide accurate and uniform dispensing of the spray solution to the surface area of the highway right-of-way throughout the operable speed range. The computer shall have a non-volatile memory with the ability to store and report data. Reporting capability shall include quantity of material sprayed, area treated, and hours of operation on a daily basis.

Equipment shall be capable of dispensing herbicide by either (1) tank mixed solution, or (2) chemical injection and mixing immediately prior to the distribution nozzles. In the event tank mix equipment is used, means shall be provided for constant agitation (either jet or mechanical) of the mixture during the filling and spraying operation. Each piece of equipment shall be equipped with a hand gun and nozzles capable of spreading the mixed solution uniformly, at the specified rate, over surface areas missed or inaccessible to the broadcast spraying.

Herbicide application equipment operated from the roadway or paved shoulder surface shall follow all MUTCD guidelines for a mobile operation..

Smaller motorized ground operated equipment may be used with the approval of the Engineer. This equipment may be used on smaller areas, such as landscaped areas within the limits of the right-of-way. The smaller areas are defined as the areas that are inaccessable to truck mounted and agricultural type sprayers normally used for broadcast applications from the roadway or open areas within the right-of-way. This smaller motorized ground operated equipment shall be equipped with a hand gun and/or nozzles capable of spreading the mixed solution uniformly over the area to be treated. Means shall be provided for constant agitation (either jet or mechanical) of the mixture during the filling and spraying operations.

2. Equipment for Spot Spraying.

Spot spraying by means of hand guns, backpack sprayers, portable tanks, etc., shall be capable of applying the herbicide solution at the designated plan rate or as directed by the Engineer. Herbicides placed with this type equipment shall dispense solution which contains the correct herbicide to carrier ratio. The herbicide solution shall be directed and placed on the target area to provide uniform, adequate and proper coverage in accordance with label instructions and as directed by the Engineer.

(b) Methods of Operation

Prior to beginning work, a conference between representatives of the Department and the Contractor will be arranged by the Department. In this meeting plans, specifications, unusual conditions, methods for marking non-sprayable areas, and other pertinent items regarding the work will be discussed. Certain "No-Spray" areas may occur; these fall within the defined limits of the spraying area as indicated by the plans and specifications. These areas are where various businesses or agencies have ornamental plantings or improved turf within the highway right-of-way and perform their own maintenance, or as directed by the Engineer. The Department will determine all non-sprayable areas.

Spraying will not be permitted when, in the opinion of the Engineer, soil, vegetation, and/or weather conditions are such that the right-of-way or the vegetation would be damaged or spraying would be ineffective.

The Contractor shall spray as close as practicable to all fixed objects, exercising extreme care not to damage trees, plants, shrubs, signs, delineators or other appurtenances which are part of the facility. Any damage caused by the Contractor's spraying operations to any tree, plant, shrub, sign, delineator or other appurtenance which is part of the facility shall be pruned, trimmed, repaired or replaced immediately by the Contractor at no cost to the Department. The Engineer will determine whether the damage shall be corrected by pruning, trimming, repair or replacement.

The Contractor shall be responsible for any damage to public or private property which may occur as a result of the spraying operation.

(c) Spraying Application Requirements.

The Contractor shall possess the appropriate license and permit required by the State of Alabama Department of Agriculture and Industries for conducting business in the State of Alabama.

All personnel directly involved in the application of the herbicide solution, to include operators and project supervisory personnel, shall be experienced in the ground application of pesticides on highway rights-of-way.

Operators and project supervisors involved with this project shall possess a commercial applicator permit issued by the State of Alabama Department of Agriculture and Industries covering the "Right-of-Way" category.

The Contractor will furnish two copies of product labels and material safety data sheets for the products used on the project. One copy of each will be furnished to the Engineer and one copy will be kept with the vehicles applying the herbicide at all times.

While spraying, care shall be exercised to prevent damage by spray drift or direct contact of herbicide to areas containing plantings of shrubs and bushes, designated wildflower areas, deciduous or evergreen trees, residential plantings, vegetable or flower gardens, any susceptible farm crops, or other desirable plants. In the event of damage to any desirable plants which includes damage or "brown-out" to low hanging limbs of trees along the right-of-way, the Contractor will correct by either replacement, pruning, trimming or compensation of any damages caused by the misapplication or drift of the herbicide solution immediately following visual recognition, verbal or written notification and/or instructions from the Engineer.

No herbicide solution shall be sprayed without a drift control agent. No spraying shall be undertaken when the wind velocity is 10mph {16 km/h} or greater.

No spraying shall be undertaken during a rain, when rain is imminent, or when foliage is wet. In the event a rain occurs producing a rainfall of one-tenth of an inch {2.5 mm} within four hours or less after the treatment of an area, the area shall be retreated without additional compensations. No spraying shall be undertaken during extended periods of extremely high temperatures and drought conditions.

The Contractor shall take extreme care to ensure that herbicide does not enter any lake, stream, pond or wetlands.

The speed of any vehicle used to apply the herbicide solution to the highway right-of-way, shall not exceed 11 mph {18 km/h} when operated from the roadway/paved shoulder surface or 5 mph {8 km/h} when operated off the improved portion of the roadway.

The pattern of spray shall be such as to provide even, uniform coverage.

(d) Liability of Contractor

The Contractor shall assume all liability for any damage resulting from the application of the herbicides for this project and shall hold the State of Alabama harmless from any claims arising from this damage. It is illegal to place herbicides in a manner that is not consistent with the requirements shown on the herbicide container labeling

(e) Record of Work

It shall be the Contractor's responsibility to "scout ahead" for each day's anticipated work. Department-furnished forms (BM-196) "Herbicide Scouting Report" shall be completed prior to the beginning of each day's work. A completed and signed copy shall be furnished to the Department's Engineer for each day's operation.

The Contractor shall account for each day's work and provide information on location, area covered, weather conditions, personnel, equipment, herbicide used, rates and productivity. This information shall be provided on the Department's "Herbicide Treatment Report", which will be

provided by the Department. A completed and signed copy of this report shall also be furnished to the Department's Engineer for each day's work.

669.04 Method of Measurement

Item 669-A will be measured in acres {hectares} computed from surface measurements taken parallel to the treated surface. Computations will be to the nearest 0.1 of an acre {0.1 ha}.

Item 669-B will be measured by the gallon {liter} of dispensed solution with measurements taken from the storage vessel before and following dispersal to determine the actual amount of solution used. Computations will be to the nearest gallon {L}.

Item 669-C will be measured by the square yard {square meter} of dispensed solution with surface measurements taken parallel to the treated surface. Computations will be to the nearest 0.1 square yard {0.1 square meter}.

669.04 Basis of Payment

(a) Unit Price Coverage

Payment for all satisfactorily completed work of pre-emergent herbicide application as specified, measured as provided above, will be paid for at the contract bid price which shall be full compensation for furnishing all labor, equipment, herbicides, adjuvants, carrier, fuels, incidentals and liability insurance necessary to complete the work. Partial payments will be made on monthly estimates based on the percentage of the total work performed as estimated by the Engineer.

(b) Payment will be made under Item No.:

669-A Broadcast Post-Emergent Herbicide Treatment (*) (**) (***) (****) per acre {ha}
669-B Spot Post-Emergent Herbicide Treatment (*) (**) (***) (****) per gallon {L}
669-C Spot Post-Emergent Herbicide Treatment (*) (**) (***) (****) per square yard {square meter}

* Specify Type
** Specify Rate
*** Specify Carrier Rate of Application
**** Specify Type of Carrier

SECTION 672
STORMWATER TURBIDITY CONTROL

672.01 Description.

This Section shall cover active and passive treatment methods of reducing the turbidity level of construction stormwater. Turbidity is typically the result of fine soil particles of erodible material exposed during construction, dislodged by precipitation and runoff, and subsequently suspended in stormwater. Conventional means of erosion and sediment control are not designed to remove turbidity from construction stormwater. Additional measures must be implemented to remove the suspended materials from the water. Chemical flocculants are used to increase the particle size of suspended materials making them easier to remove. Prior to discharging construction stormwater, flocculated materials should be removed to the maximum extent practicable.

Active treatment should be used as a supplement to passive treatment for stormwater discharges that do not meet water quality standards. Active treatment typically employs mechanical pumping of captured stormwater as the means of introducing flocculant prior to mechanical filtering of flocculated materials.

Passive treatment typically employs precipitation and runoff as the means of introducing flocculant prior to physical settling of flocculated materials, typically by means of filtering devices and sedimentation basins.

672.02 Materials.

(a) Active Treatment System.

The Active Treatment System shall be designed to treat and reduce the turbidity level of construction stormwater discharges to meet state water quality standards and the requirements of the NPDES Construction General Permit at the flowrate required in the plans. The Active Treatment System flowrate specified is designed to dewater the basin within 10 hours. Typical equipment and materials may include pumps, manifolds, flocculants, filter bags, sand media filters and other items designed to

remove suspended materials from construction stormwater. The Contractor shall submit to the Engineer the proposed Active Treatment System for review as part of the Contractor's Stormwater Management Plan that is described in Subarticle 108.04(b).

(b) Flocculant.

Flocculant shall be of the type that is manufactured for use in reducing turbidity caused by soil erosion and sediment transport. All forms of Flocculant utilized on a project shall be compatible and shall be provided from a single manufacturer. Flocculant may be in the form of blocks, powder, sock sets or other non-liquid forms. Liquid forms of Flocculant may only be utilized in a monitored active treatment system. The Contractor shall be responsible for the testing of the project soil and potential sediment and for the proper selection of those Flocculants that have a soil specific chemical makeup. Flocculant application rates shall be per the manufacturer's recommendations.

A list of acceptable Flocculants (LIST II-24 "TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL PRODUCTS") is given in the ALDOT's MSDSAR manual. For Flocculants without prior acceptance, Contractor shall submit to the Engineer three copies of documentation of the effectiveness of the Flocculant, Material Safety Data Sheets, and the manufacturer's 7-day Chronic Ceriodaphnia Reproduction Testing for review and approval by the State Construction Engineer prior to use on the project.

(c) Contractor Retained Turbidimeters.

Turbidimeters shall be devices capable of measuring the nephelometric turbidity units (NTU) of construction stormwater that meets the following requirements:

- Portable waterproof device that meets USEPA Method 180.1 with a 0-1000 NTU range;
- Sample Tubes, Calibration Kit, and Protective Carrying Case;
- Rechargeable Battery, USB Interface, Cable, and Computer Software.

A list of equipment acceptable for use in this application (List II-24 "TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL PRODUCTS") is given in the ALDOT's MSDSAR manual. Information concerning this list is given in Subarticle 106.01(f).

672.03 Construction Requirements.

(a) Active Treatment.

The Contractor shall provide an Active Treatment System at the locations given in the plans or as directed by the Engineer. Treated construction stormwater discharges that do not meet state water quality standards or that do not meet the requirements of the NPDES Construction General Permit (CGP) will not be allowed.

Active Treatment Systems will typically be utilized for the dewatering of sedimentation basins. Valves located on the outlet pipe of the basin dewatering device shall remain closed until such time that the potential discharge meets state water quality standards and the requirements of the NPDES CGP. If discharge standards are not met and the sedimentation basin volume reaches 2/3 full or there is forecasted rain, the Engineer will determine if the basin should be dewatered by means of the Active Treatment System. Weather permitting, discharges may be recirculated into sedimentation basins in an effort to achieve discharge standards. The Engineer may also direct dewatering by means of the Active Treatment System to facilitate sedimentation basin maintenance. The Contractor shall ensure proper Flocculant dosing of the Active Treatment System per the manufacturer's dosing recommendations to prevent the discharge of any harmful levels of Flocculant. The turbidity level of the Active Treatment System discharge and the effectiveness of the Flocculant shall be monitored by the Contractor and will be verified by the Engineer.

(b) Passive Treatment.

The Contractor shall apply Flocculant at the locations given in the plans or as directed by the Engineer. Flocculant shall be introduced to flowing stormwater at locations such as ditch checks, temporary slope drains and forebays of sedimentation basins, prior to retention BMPs intended to promote settling and capture of flocculated material. Heavy sediment and sand should be captured prior to the location of the Flocculant application. Flocculant shall never be applied directly to live streams or waters of the state. Flocculant shall be applied in accordance with the Flocculant manufacturer's dosing recommendations and the requirements shown on the plans for construction stormwater turbidity reduction. The effectiveness of the Flocculant will be monitored by the Engineer. ALDOT and Contractor QCIs shall inspect Flocculant applications after each rain event to determine if the reapplication of Flocculant is needed.

(c) Construction Stormwater Sampling and Turbidity Monitoring.

When construction stormwater sampling and turbidity monitoring is required per Item 107.21(e)2., the Contractor shall furnish the required quantity of Turbidimeters for use by the Engineer. The Contractor shall provide documentation of professional calibration of the device prior to delivery to the project and shall maintain annual professional calibration during the time that it is required on the project. Daily calibration and required stormwater sample testing shall be performed by the Engineer. The Contractor shall immediately replace any Turbidimeters that are in need of annual professional calibration or are otherwise not properly functioning, without additional compensation. The Contractor shall retain ownership of the device and will be notified once the Engineer determines that the device is no longer needed.

672.04 Method of Measurement.

(a) Active Treatment System.

Active Treatment System (Item 672-A) will be measured per each.

(b) Active Treatment System, Operating Day.

Active Treatment System, Operating Day (Item 672-B) will be measured per each. Operating days shall be measured individually for each Active Treatment System.

(c) Flocculant Application.

Flocculant Application (Item 672-C) will be measured per each based on the type of application (ditch check, temporary slope drain, sedimentation basin, or inlet protection).

(d) Contractor Retained Turbidimeters.

Contractor Retained Turbidimeters (Item 672-D) will be measured per each.

672.05 Basis of Payment.

(a) Unit Price Coverage.

Payment for Active Treatment System shall be full compensation for all equipment costs for a complete system designed to dewater at the required flowrate given in gallons per minute (GPM), including but not limited to delivery, installation, maintenance, and rental fees. Payment will not be made for the replacement of an Active Treatment System that does not produce discharges meeting requirements.

Payment for an Operating Day of the Active Treatment System shall be full compensation for all labor and material costs to operate one complete system at the required flowrate given in gallons per minute (GPM), for up to 10 hours, including but not limited to Flocculant, filter media, and other consumables. Payment shall only be made for operation directed by the Engineer.

Payment for flocculant shall be full compensation for testing (if required), furnishing and placing the flocculant.

Payment for the accepted Turbidimeter shall include furnishing of the device with all the required accessories and for any required calibrations. Payment shall be for the exclusive use of the device for the duration of the contract or until the Engineer determines that there will be no further need for the device.

(b) Payment will be made under Item No.:

672-A Active Treatment System, _____ GPM – per each
672-B Active Treatment System, _____ GPM, Operating Day – per each
672-C Flocculant Application, * – per each
672-D Contractor Retained Turbidimeter – per each

* Ditch Check, Temporary Slope Drain, Sedimentation Basin, or Inlet Protection

SECTION 801
COARSE AGGREGATE

801.01 Description.

(a) General.

Coarse aggregate shall consist of crushed or uncrushed gravel, crushed stone, or crushed slag, having hard, strong, durable pieces, free from adherent coatings and conforming to the requirements provided in this Section. Gravel aggregate for use in bituminous plant mixes and bridge superstructure concrete (except prestressed concrete) shall have a bulk specific gravity greater than 2.550 (AASHTO T 85).

(b) Acceptance.

The Department has established a list of qualified producers of coarse aggregates. Refer to Subarticle 106.01(f) and ALDOT-355 concerning this list.

All coarse aggregates furnished shall come from an approved producer who is participating in and meeting the requirements of ALDOT-249, "Quality Control Program for Acceptance of Fine and Coarse Aggregates". The producer's name shall be listed in the Department's "Materials, Sources and Devices With Special Acceptance Requirements" manual, List I-1.

801.02 Deleterious Substances.

Material suspected of containing deleterious substances will be examined in the laboratory and will be rejected if the amount is considered objectionable.

Coarse aggregate for Portland cement concrete and cover aggregate for bituminous treatment shall be washed and shall be free from adherent coatings. Coating on crushed stone shall be dust of fracture as determined by washing the material passing the No. 200 {75 µm} sieve in accordance with AASHTO T 11 or visual inspection using a petrographic microscope. Adherent coating will be checked by washing in a large container without scrubbing or applying water pressure. The aggregate will then be checked for adherent coating by visual inspection. Aggregate that has an adherent coating will not be acceptable.

The amount of deleterious substances shall not exceed the limits shown in the following table.

MAXIMUM ALLOWABLE DELETERIOUS MATERIALS IN COARSE AGGREGATE		
TYPE OF DELETERIOUS MATERIAL	**Bituminous Surface Treatments and Concrete Classes A, B and D*** **	**All Other Uses**
Coal and Lignite (Visual)	0.25 %	0.25 %
Clay Lumps (AASHTO T 112)	0.25 %	0.25 %
Material Passing the No. 200 {75 µm} Sieve (AASHTO T 11)	1.0 %	2.0 %
Flat or Elongated particles (5:1 Ratio) (ASTM D 4791 by Weight {Mass})	10.0 %	10.0 %
Flat or Elongated particles (3:1 Ratio) (ASTM D 4791 by Weight {Mass})	20.0 %	20.0 %
Other local deleterious substances (Shale, Mica, Marcasite, etc.) (Visual)	2.0 %	2.0 %
Reactive Silica (via ASTM C 25) (* restrictions apply to the use of limestone in Portland Cement Concrete)	8.0 %	8.0 %
Absorption	**	**
* See NOTE 1 following this table. ** See NOTE 2 following this table. *** See NOTE 3 following this table.		

- NOTE 1: One of the three following options shall be used for the design of concrete mixes with limestone aggregates that contain more than 8.0% silica. The submittal of a concrete mix design using limestone aggregate with more than 8% silica will not be approved if it does not include one of the following three options:
  - Option 1: Class F fly ash shall be substituted for cement at a fixed rate of 20% replacement by weight.
  - Option 2: Ground Granulate Blast Furnace Slag (GGBFS) shall be substituted for cement at a fixed rate of 50 % replacement by weight. GGBFS increases the time of setting of concrete, therefore, this option shall be used only for concrete placed at ambient temperatures of 45 ºF {7 ºC} or above.
  - Option 3: Class C fly ash and micro silica shall be substituted for cement at a fixed rate of 35 % replacement by weight. The distribution of the replacement shall be 30 % Class C fly ash and 5 % micro silica by weight.
- NOTE 2: The restriction of the amount of absorption applies to gravel aggregates only for the following applications. Gravel for use in bituminous plant mixes and bridge superstructure concrete (except prestressed concrete) shall have a total sample absorption not greater than 2.0 percent on the material passing the 3/4 inch {19.0 mm} sieve and retained on the No. 4 {4.75 mm} sieve as per modified AASHTO T 85. Section 8.1 of AASHTO T 85 shall be modified to require a 15-minute vacuum saturation period as per Section 6.3 of AASHTO T 209 prior to the required 15-19 hour soaking period.
- NOTE 3: The maximum allowable deleterious materials in coarse aggregate used in Class A concrete applies only to concrete used for bridge substructures, box culverts, retaining walls, and concrete safety barriers.

801.03 Crushed Stone, Gravel, and Crushed Gravel.

(a) General.

Crushed stone shall be from approved ledges or working strata within an approved source and shall consist of clean, tough, durable fragments, reasonably free of shale, conforming to requirements for the type use noted in Subarticle 801.03(b) and the gradation specified.

Gravel shall consist of a clean, tough, durable, natural rounded or semi-rounded siliceous rock, free from coatings of any character, and conforming to the gradation specified. Crushed gravel shall consist of crushed fragments of gravel, conforming to the requirements of Subarticles (a) and (b) of this Article.

Gravel for use in bituminous plant mixes and bridge superstructure concrete (except prestressed concrete) shall have a bulk specific gravity greater than 2.550 (AASHTO T 85).

Unless otherwise specified, at least 80 percent by weight {mass} of the blended aggregate retained on the No. 4 {4.75 mm} sieve shall have at least two fully fractured faces measured in accordance with ASTM D 5821.

(b) Physical Tests.

Crushed stone, gravel, and crushed gravel shall meet the following requirements for the respective physical tests:

		Cement Concrete	Bituminous Work	All Other Uses
1.	Percent Wear Los Angeles Test (AASHTO T 96)	50 Max.	48 Max. *	60 Max.
2.	Percent Sound, Soundness Test (AASHTO T 104 using Sodium Sulphate and 5 Cycles)	90 Min.	90 Min.	90 Min.
* Except for Sandstone and Blast Furnace Slag, 55 Max.				

801.04 Blank.

801.05 Crushed Slag.

(a) General.

Slag is defined as a stone-like siliceous material with porous faces produced as a by-product of various manufacturing processes.

Crushed slag produced from processing slag obtained from sources approved by the Materials and Tests Engineer shall consist of clean, tough, durable pieces, reasonably uniform in density and quality without thin or elongated pieces, free from deleterious substances, and conforming to the specified gradation.

Crushed slag furnished for use in Bituminous Wearing Surface layers shall, in addition to the above, be restricted in its glassy particles content, when tested in accordance with ALDOT-321 to the following:

Type Wearing Surface	Glassy Particle Content
Surface Treatments	10% Maximum
Open Graded P.M.	10% Maximum
Dense Graded P.M.	25% Maximum

(b) Physical Tests.

Physical tests for crushed slag shall be the same as provided by Subarticle 801.03(b) for the type of construction specified, i.e., soil type, or bituminous.

801.06 Coarse Aggregate for White Concrete.

This coarse aggregate shall be white or very light-colored gravel, limestone, marble, or granite, subject to the approval of the Engineer for color and otherwise conforming to the specifications of this section for coarse aggregate. The size number will be shown on the plans and/or proposal.

801.07 Coarse Aggregate for Mastic (For Water Proofing Concrete Surfaces).

Coarse aggregate for mastic shall be a well crushed stone, slag, or washed gravel that will pass a 3/8 inch {9.5 mm} sieve and be retained on a No. 8 {2.36 mm} sieve. It shall be free from soft particles and organic matter.

801.08 Gradation.

Coarse aggregate shall be graded between the limits specified and the size or sizes designated shall conform to the limits shown in the following Coarse Aggregate Gradation Table provided in Subarticle 801.11(d).

801.09 Aggregates for Base.

Aggregates for base layers shall consist of gravel, crushed gravel, crushed slag, or crushed stone as specified for the type of base designated; however, sand and gravel from local roadside pits will only be required to comply with the applicable portion of Section 826.

801.10 Aggregates for Bituminous Work.

Aggregate for bituminous work shall be one or a combination of the aggregates specified for the type of bituminous work involved. It shall be uniformly graded so as to meet the gradation requirements

for the size designated to be used. The aggregate shall be of such nature that when once thoroughly dried and coated with the bituminous material proposed for construction, the coating will not strip off upon contact with water.

801.11 Use, Care, and Handling: Gradation Table and Explanation.

(a) Care and Handling.

Care and handling shall be as provided by Article 106.05.

(b) Storage.

Attention is directed to the requirements of Article 106.05 and the following:

- The Contractor shall prepare the storage area as needed; any stockpiled material that cannot be removed without including dirt or other foreign matter shall be rejected.
- Stockpiling shall be as provided by ALDOT-175.
- Different sizes of aggregate and aggregate from different sources shall be stored in separate stockpiles sufficiently separated from each other so that the material will not become intermixed. Any material which segregates so that the grading no longer conforms to that specified shall be rejected for use.

(c) Use.

- At the time of their use, the aggregates shall be free from all foreign materials.
- When more than one size of aggregate is required, the various sizes shall be combined in proper proportions at the mixer or plant.
- Aggregates stored in proportioning bins shall be protected from rain by waterproof coverings.

(d) Coarse Aggregate Gradation Table.

TABLE OF ALDOT COARSE AGGREGATE SIZES *																
PERCENT PASSING BY WEIGHT {MASS}, EACH LABORATORY SIEVE (U.S.A. STANDARD SERIES)																
Size > Number Û	4 inch {100 mm}	3.5 inch {90 mm}	3 inch {75 mm}	2.5 inch {63 mm}	2 inch {50 mm}	1.5 inch {37.5 mm}	1 inch {25.0 mm}	3/4 inch {19.0 mm}	1/2 inch {12.5 mm}	3/8 inch {9.5 mm}	# 4 {4.75 mm}	# 8 {2.36 mm}	# 16 {1.18 mm}	# 50 {300 µm}	# 100 {150 µm}	# 200 {75 µm}
1	100	90-100		25-60		0-15		0-5								
2			100	90-100	35-70	0-15		0-5								
24			100	90-100		25-60		0-10	0-5							
3				100	90-100	35-70	0-15		0-5							
357				100	95-100		35-70		10-30		0-5					
4					100	90-100	20-55	0-15		0-5						
467					100	95-100		35-70		10-30	0-5					
410					100	85-100	60-85		30-60		18-30	11-20	8-15	5-9		2-6
5						100	90-100	20-55	0-10	0-5						
56						100	90-100	40-85	10-40	0-15	0-5					
57						100	95-100		25-60		0-10	0-5				
6							100	90-100	20-55	0-15	0-5					
67							100	90-100		20-55	0-10	0-5				
68							100	90-100		30-65	5-25	0-10	0-5			
610							100	90-100		25-60		7-30		0-15		
7								100	90-100	40-70	0-15	0-5				
78								100	90-100	40-75	5-25	0-10	0-5			
710								100	90-100	50-85		12-35		0-15		
8									100	85-100	10-30	0-10	0-5			
89									100	90-100	20-55	5-30	0-10	0-5		
810									100		70-90	50-74	38-62	20-42		9-24
8910									100	90-100	60-85	40-70		10-25		1-5
9										100	85-100	10-40	0-10	0-5		
10										100	85-100				10-30	

* Explanation of Table

1. Tabulated figures are percentages by weight {mass} of material finer than each laboratory sieve.
2. Exclusive of lightweight aggregates, the minimum dry rodded weight per cubic foot {mass per cubic meter} shall be 65 pounds {1040 kg} for Sizes 1, 3, and 4, and 70 pounds {1120 kg} for other sizes. See Article 801.12 for weight {mass} of lightweight aggregate.

The following coarse aggregate (gravel only) gradation may be substituted for use in concrete headwalls, inlets, miscellaneous concrete units, slope paving, machine laid curbs, gutters, or combination curbs and gutters:

Sieve Size (Square Openings)	Percent Passing By Weight {Mass}
1.5 inches {37.5 mm}	100
1 inch {25.0 mm}	80 – 100
3/4 inch {19.0 mm}	70 – 100
1/2 inch {12.5 mm}	25 - 80
# 4 {4.75 mm}	0 - 15
# 8 {2.36 mm}	0 - 10

801.12 Lightweight Aggregates for Bituminous Work.

Lightweight Aggregates of expanded clays or shales produced by the Rotary Kiln Method shall meet the requirements noted herein in this Section except the maximum dry rodded weight {mass} shall be 55 pounds per cubic foot {880 kg/m^3} and the L.A. Abrasion Test (AASHTO T 96) shall be modified to compensate for lightweight aggregate by the use of the following method.

Modification to AASHTO T 96 for Lightweight Aggregate:

To avoid the excessive volume of material in the testing machine which will occur when the lightweight aggregate sample is prepared according to AASHTO T 96, it is necessary to reduce the weight {mass} proportionately to obtain an equal volume of lightweight aggregate comparable to that normally obtained with a conventional aggregate sample.

The abrasive charge must also be reduced in a similar manner.

Determine the unit weight {mass} (U_L) of the lightweight aggregate by AASHTO T 19.

Assume an average unit weight {mass} of conventional aggregate to be 97.0 pounds per cubic foot {1554 kg/m^3}.

Reduce the lightweight aggregate sample.

$$\frac{U_L}{97.0} = \frac{X}{C} \qquad \left\{ \frac{U_L}{1554} = \frac{X}{C} \right\}$$

$$X = \frac{(C)\,(U_L)}{97.0} \qquad \left\{ X = \frac{(C)\,(U_L)}{1554} \right\}$$

Where:

U_L = Unit weight {mass} of lightweight aggregate sample (pounds per cubic foot {kilograms per cubic meter})
C = Weight {Mass} of Conventional aggregate required for grading in AASHTO T 96.
X = Reduced lightweight aggregate sample charge.

- Reduce the abrasive charge:

$$\frac{U_L}{97.0} = \frac{X_1}{C_L} \qquad \left\{ \frac{U_L}{1554} = \frac{X_1}{C_L} \right\}$$

$$X_1 = \frac{(C_L)\,(U_L)}{97.0} \qquad \left\{ X_1 = \frac{(C_L)\,(U_L)}{1554} \right\}$$

Where:

U_L = Unit weight {mass} of lightweight aggregate (pounds per cubic foot {kilograms per cubic meter})
C_L = Weight {Mass} of abrasive charge required for grading in AASHTO T 96.
X_1 = Reduced abrasive charge for lightweight aggregate.

- Remainder of procedure as set forth in AASHTO T 96.
-
- NOTE: It is sometimes impossible to obtain the exact abrasive charge with the steel balls available. In this case, obtain the closest abrasive charge possible to the reduced value and then adjust the weight {mass} of the sample in proportion to the new abrasive charge.

SECTION 810
GEOTEXTILES

810.01 Geotextile Filters.

Geotextile filters shall meet the appropriate chemical and physical requirements of AASHTO M 288 for the application for which the material is to be used. The Department has established a list of acceptable Geotextiles. Only the materials on this list shall be furnished for use. This list, List II-3, is given in the "Materials, Sources, and Devices With Special Acceptance Requirements" Manual. Information concerning this list is given in Subarticle 106.01(f) and ALDOT-355.

Geotextile rolls shall be furnished with a suitable wrapping for protection against moisture and extended ultraviolet exposure prior to placement. Each roll shall be labeled or tagged to provide product identification sufficient for inventory and quality control purposes. Rolls shall be stored in a manner which protects them from the elements. If stored outdoors, they shall be elevated and protected with a waterproof cover.

The geotextile shall be formed in widths of not less than 6 feet {2 m}. Sheets of geotextile may be sewn together with thread of a material meeting the chemical requirements given for the plastic yarn to form filter widths as required. The sheets of geotextile shall be sewn together at the point of manufacture or another approved location.

SECTION 814
RIPRAP MATERIALS

814.01 Stone.

(a) General.
All stone for riprap shall consist of field stone or rough unhewn quarry stone as nearly rectangular in section as is practicable. When tested as specified in AASHTO T 104, the stone shall show a soundness of not less than 85 percent for 5 cycles, using sodium sulphate, and shall be suitable in all other respects for the purpose intended. It shall have a percentage wear not over 60 percent by the Los Angeles Test, AASHTO T 96, and shall meet the requirements of Article 801.02 for deleterious substances; however, the requirements for deleterious substances may be modified by the Engineer.

Control of the gradation of the various classes of riprap will be by visual inspection either at the source or the project site at the Engineer's option. Any difference of opinion between the Engineer and the Contractor shall be resolved by checking two random truck loads (or equivalent size sample) in accordance with the method provided in ALDOT-239 with all the equipment, labor, and sorting site for this check being provided by the Contractor at his expense.

(b) Class 1 Riprap.
Stone for this class riprap shall consist of graded stones ranging from 10 to 100 pounds {5 to 50 kg} with not more than 10% having a weight {mass} over 100 pounds {50 kg} and at least 50% having a weight {mass} over 50 pounds {25 kg} and not over 10% having a weight {mass} under 10 pounds {5 kg}.

(c) Class 2 Riprap.
Stone for this class riprap shall consist of graded stones ranging from 10 to 200 pounds {5 kg to 100 kg} with not over 10% having a weight {mass} over 200 pounds {100 kg} and at least 50% having a weight {mass} over 80 pounds {40 kg} and not over 10% having a weight {mass} under 10 pounds {5 kg}.

(d) Class 3 Riprap.
Stone for this class riprap shall consist of reasonably well graded stones ranging from 25 pounds to 500 pounds {10 kg to 250 kg} with not over 10% having a weight {mass} over 500 pounds {250 kg}, at least 50% having a weight {mass} over 200 pounds {100 kg} and not more than 15% having a weight {mass} under 25 pounds {10 kg}.

(e) Class 4 Riprap.
Stone for this class riprap shall consist of reasonably well graded stones ranging from 50 to 1000 pounds {25 kg to 450 kg} with not over 25% having a weight {mass} over 1000 pounds {450 kg}, at least 50% having a weight {mass} over 500 pounds {250 kg} and not more than 25% having a weight {mass} under 50 pounds {25 kg}.

(f) Class 5 Riprap.
Stone for this class riprap shall consist of reasonably well graded stones ranging from 2000 pounds {900 kg} and down with not over 10% having a weight {mass} over 2000 pounds {900 kg}, at least 50% having a weight {mass} over 1000 pounds {450 kg} and not more than 25% having a weight {mass} under 200 pounds {100 kg}.

814.02 Concrete Sacked Riprap.

(a) Sacks.
Sacks shall be new, unused, manufactured from jute, cotton, burlap, reinforced paper, or other approved materials capable of holding the cement mixture without significant leakage when handled. The sacks shall be of uniform size and dimension with a capacity of approximately 0.75 cubic feet {0.025m^3}.

(b) Aggregate.
Local sand, gravel, or other designated aggregates shall be from sources approved by the Engineer suitable for the purpose intended.

(c) Cement.
Cement shall meet the requirements of Section 815.

(d) Water.
Water shall meet the requirements of Section 807.

(e) Mixing.
The aggregate and cement shall be formulated by volumetric measure in the proportions of one part cement to four parts sand and five parts gravel or nine parts of bank run gravel, or to designated proportions of other materials, then damp mixed in a concrete mixer using sufficient water to provide for a crumbly consistency.

(f) Prepackaged Concrete Sacked Riprap.
Prepackaged sack riprap which utilizes approved bagging material and a dry mixture of predried sand-cement material may be substituted for the concrete sacked riprap noted in this Article provided (1) the source or prepackaging operation has been approved by the Materials and Tests Engineer, (2) the packing material is permeable and absorptive enough to permit passage of sufficient water to provide for hydration of the cement, (3) the sand and cement materials are from sources acceptable to the Materials and Tests Engineer, (4) the sand and cement are dry mixed in the proportions of 5 cubic feet {0.14 m^3} of sand to one bag of cement until uniform in color, (6) packaging, handling, and storage shall be such as to prevent damage to the prepackaged material, especially from collecting excess moisture until placed.

814.03 Filter Blanket.

(a) General.
Filter blanket material shall consist of a blanket of aggregate or geotextile blanket placed under a riprap material.

(b) Aggregate Blanket.
An aggregate blanket may be either gravel or crushed stone ALDOT Size No. 467 aggregate, unless otherwise shown on the plans, reasonably free from flat or elongated pieces and from organic or soft friable particles in objectionable quantities.

(c) Geotextile Blanket.
The geotextile shall meet the requirements of AASHTO M 288 for Permanent Erosion Control Geotextile and Section 810 of these specifications.

SECTION 860
ROADSIDE IMPROVEMENT MATERIALS

860.01 Seed.

(a) Pure Seedings.

1. Testing and Certification.
   Seeds shall be certified by an Official Seed Certifying Agency. Seeds shall have been tested within nine months prior to use. Each kind of seed shall be separately packed and delivered to the project in a seed-tight bag. Each bag shall bear a tag or label bearing the seal of the Official Seed Certifying Agency.
   The analysis of the seed (% pure seed, % germination, date tested, etc.) shall be attached to each bag. Seed shall be at least 95 % pure seed of the required type. Seed for lespedezas shall have a minimum germination rate of 80 %. Seed for all other species shall have a minimum germination rate of 85 %.
2. Sampling and Verification Testing.
   Samples of seeds may be taken at any time by the Engineer. Tags or labels that have the analysis of the seeds will be placed with the samples taken by the Engineer. The samples will be stored by the Engineer until a satisfactory stand of grass is obtained. If it is apparent that germination or other problems exist in the establishment of the ground cover, the samples will be submitted to the Alabama Department of Agriculture for testing.
3. Hulled and Scarified Seeds.
   Bermudagrass may be either hulled or unhulled as shown in the table of seed mixes.
   Sericea Lespedeza shall be hulled and scarified.
   Annual Lespedeza (Kobe), White Dutch Clover, and Reseeding Crimson Clover shall be hulled.
4. Coated Seeds.
   Coated seeds will not be accepted for planting unless noted otherwise on the plans.

(b) Seed Mixes Designated for Areas of Frequent Mowing.

Some seed mixes are designated for "AREAS SUBJECT TO FREQUENT MOWING". Areas subject to frequent mowing are roadway shoulders, medians and front slopes flatter than 3:1 extending 60 feet beyond the edge of pavement or to the toe of the front slope whichever is less. All other areas designated for seeding shall be considered to be "AREAS NOT SUBJECT TO FREQUENT MOWING".

(c) Planting Zones.

The State of Alabama is divided into three planting zones as shown in the following table:

ZONE 1		ZONE 2		ZONE 3	
Blount	Lauderdale	Autauga	Montgomery	Baldwin	Marengo
Calhoun	Lawrence	Bibb	Perry	Barbour	Mobile
Cherokee	Limestone	Bullock	Pickens	Butler	Monroe
Clay	Madison	Chambers	Russell	Choctaw	Pike
Cleburne	Marion	Chilton	Sumter	Clarke	Washington
Colbert	Marshall	Coosa	Tallapoosa	Coffee	Wilcox
Cullman	Morgan	Dallas	Tuscaloosa	Conecuh	
Dekalb	Randolph	Elmore		Covington	
Etowah	Shelby	Greene		Crenshaw	
Fayette	St. Clair	Hale		Dale	
Franklin	Talladega	Lee		Escambia	
Jackson	Walker	Lowndes		Geneva	
Jefferson	Winston	Macon		Henry	
Lamar				Houston	

(d) Seed Mixes.

Seed mixes shall be mixtures of the types of seeds shown in the following tables. The required weight shown in the chart is the actual seed weight as delivered and takes into account the minimum required percentage of pure seeds and minimum required germination rates.

ZONE 1 - AREAS SUBJECT TO FREQUENT MOWING
REQUIRED POUNDS PER ACRE {KILOGRAMS PER HECTARE} OF PURE LIVE SEED

Date of Planting	Aug. 16 to Feb. 29		Mar. 1 to May 15	May 16 to August 15
Annual Ryegrass	10 {11}	25 {28}		
Hulled Bermudagrass			18 {20}	24 {27}
Unhulled Bermudagrass	30 {34}		12 {13}	
Annual Lespedeza (Kobe)				38 {43}
White Dutch Clover	5 {6}		6 {7}	
Notes	1	2		
Required Permanent Plant	Bermudagrass			

1. During this season Ryegrass, Bermudagrass and Clover are required where vegetation must be established within an area no further than 15 feet {3 m} from the edge of mainline pavement. (This is usually required for short duration work that is done on pavement resurfacing projects.)
2. Annual Ryegrass is required where vegetation must be established within an area that extends further than 15 feet {3 m} from the edge of mainline pavement. Seeding in stubble for the establishment of permanent vegetation is required during the following month of March.

ZONE 1 - AREAS NOT SUBJECT TO FREQUENT MOWING
REQUIRED POUNDS PER ACRE {KILOGRAMS PER HECTARE} OF PURE LIVE SEED

Date of Planting	Jan. 1 to Feb. 29	Mar. 1 to August 15	Aug. 16 to Nov. 15	Nov. 16 to Dec. 31
Annual Ryegrass	15 {17}			15 {17}
Hulled Bermudagrass		18 {20}		
Unhulled Bermudagrass	35 {39}	12 {13}	18 {20}	35 {39}
Tall Fescue	35 {39}	35 {39}	35 {39}	35 {39}
Weeping Lovegrass		2 {2}		
Hulled Sericea Lespedeza		38 {43}	38 {43}	
Unhulled Sericea Lespedeza	38 {43}			38 {43}
Reseeding Crimson Clover			29 {33}	
Required Permanent Plant	Mixed			

ZONE 2 - AREAS SUBJECT TO FREQUENT MOWING
REQUIRED POUNDS PER ACRE {KILOGRAMS PER HECTARE} OF PURE LIVE SEED

Date of Planting	Aug. 16 to Feb. 29		Mar. 1 to Apr. 15	Apr. 16 to Aug. 15
Annual Ryegrass	10 {11}	25 {28}		
Hulled Bermudagrass			18 {20}	24 {27}
Unhulled Bermudagrass	30 {34}		12 {13}	
Annual Lespedeza (Kobe)				38 {43}
White Dutch Clover	5 {6}		6 {7}	
Notes	1	2		
Required Permanent Plant	Bermudagrass			

1. During this season Ryegrass, Bermudagrass and Clover are required where vegetation must be established within an area no further than 15 feet {3 m} from the edge of mainline pavement. (This is usually required for short duration work that is done on pavement resurfacing projects.)
2. Annual Ryegrass is required where vegetation must be established within an area that extends further than 15 feet {3 m} from the edge of mainline pavement. Seeding in stubble for the establishment of permanent vegetation is required during the following month of March.

ZONE 2 - AREAS NOT SUBJECT TO FREQUENT MOWING
REQUIRED POUNDS PER ACRE {KILOGRAMS PER HECTARE} OF PURE LIVE SEED

Date of Planting	Jan. 1 to Feb. 15	Feb. 16 to Aug. 31	Sept. 1 to Nov. 15	Nov. 16 to Dec. 31
Annual Ryegrass	10 {11}	5 {6}	10 {11}	10 {11}
Hulled Bermudagrass		18 {20}	12 {13}	
Unhulled Bermudagrass	24 {27}	12 {13}	12 {13}	24 {27}
Tall Fescue	29 {33}		35 {39}	29 {33}
Weeping Lovegrass		2 {2}	2 {2}	
Annual Lespedeza (Kobe)		50 {56}		
Reseeding Crimson Clover	29 {33}		29 {33}	29 {33}
Pensacola Bahia Grass	29 {33}	29 {33}	29 {33}	29 {33}
Required Permanent Plant	Mixed			

ZONE 3 - AREAS SUBJECT TO FREQUENT MOWING
REQUIRED POUNDS PER ACRE {KILOGRAMS PER HECTARE} OF PURE LIVE SEED

Date of Planting	Sept. 1 to Feb. 29		Mar. 1 to Aug. 31	Mar 1. to Aug. 31
Annual Ryegrass	10 {11}	25 {28}		
Hulled Bermudagrass		*	18 {20}	
Unhulled Bermudagrass	30 {34}		12 {13}	12 {13}
Annual Lespedeza (Kobe)			38 {43}	24 {27}
Pensacola Bahia Grass				47 {53}
Reseeding Crimson Clover	5 {6}			
Notes	1	2	3	3
Required Permanent Plant	Bermudagrass			Pensacola Bahia Grass

1. During this season Ryegrass, Bermudagrass and Clover are required where vegetation must be established within an area no further than 15 feet {3 m} from the edge of mainline pavement. (This is usually required for short duration work that is done on pavement resurfacing projects.)
2. Annual Ryegrass is required where vegetation must be established within an area that extends further than 15 feet {3 m} from the edge of mainline pavement. Seeding in stubble for the establishment of permanent vegetation is required during the following month of March.
3. Bermudagrass will be required as the permanent plant if it is not shown on the plans that Pensacola Bahia Grass will be required as the permanent plant.

ZONE 3 - AREAS NOT SUBJECT TO FREQUENT MOWING
REQUIRED POUNDS PER ACRE {KILOGRAMS PER HECTARE} OF PURE LIVE SEED

Date of Planting	Jan. 1 to Feb. 15	Feb. 16 to Aug. 31	Sept. 1 to Nov. 30	Dec. 1 to Dec. 31
Annual Ryegrass	10 {11}		10 {11}	10 {11}
Hulled Bermudagrass		12 {13}	12 {13}	
Unhulled Bermudagrass	29 {33}	18 {20}	12 {13}	29 {33}
Tall Fescue	29 {33}		35 {39}	29 {33}
Weeping Lovegrass		2 {2}	2 {2}	
Annual Lespedeza (Kobe)		50 {56}		
Reseeding Crimson Clover	29 {33}		29 {33}	29 {33}
Pensacola Bahiagrass	29 {33}	24 {27}	29 {33}	29 {33}
Required Permanent Plant	Mixed			

860.02 Grass Sprigs.

(a) General.

This Article is based on the use of sprigs; however, should the Contractor elect to use plugs of sod, the same basic requirements are applicable except that harvesting shall be in accordance with the provisions of Article 860.05 for solid sod, which in turn shall be cut to proper size (at least 2 inches by 2 inches {50 mm by 50 mm}) by an acceptable procedure before use.

Grass sprigs or plugs of sod turfs shall be common or Tiflawn Bermudagrass, Centipede, Myers Zoysia, Zoysia Matrella, or other perennial running grasses that may be indicated by the plans. All grass shall be native or adaptable to the locality of the work and shall be live, fresh, vigorous, and uninjured at the time of planting and until completion and acceptance of the work. The sprigs shall have well formed and developed root systems and shall be in clusters or tufts at least 1 inch {25 mm} in diameter unless otherwise directed. Sprigs containing Johnsongrass, Bahiagrass, Dallasgrass, or other objectionable grasses or weeds will not be accepted.

(b) Procuring and Handling Sprigs.

Before harvesting, the Engineer shall be notified of the source of sprigs for purposes of inspection. Approval of sources on such examination shall not be construed as an acceptance of the material.

Unless the grass area has been grazed closely, it shall be mowed to height of 3 inches {75 mm} maximum before harvesting. The sprigs shall be harvested with a sod-cutter, turning plow, or other approved implements in such a manner that at least 2 inches {50 mm} of the root system will be lifted intact. Raking and otherwise harvesting sprigs that remain on the surface after digging and have been allowed to dry out, will not be permitted. Solid sod specified in Article 860.05 may be pulled apart and used as sprigs.

The properly harvested sprigs shall be loaded within one hour after they are dug then transported to the place where they are to be planted. They shall be kept cool, moist and shaded at all times after digging, while being transported to the sprigging site, after being unloaded, and until planted. Small quantities of sprigs left over at the end of the work day or at time of heavy rains may be stocked in thin covered piles and may be used the next day or not over three days later, provided sprigs in the pile are still acceptable. The sprigs will be subject to inspection during the planting period, and any material which has been permitted to dry out or to freeze, or which is not moist and viable, will be rejected.

When large pieces of sprigs are to be broken down into smaller pieces for sprigging, this operation shall be done by hand or by such other means that will avoid severing the roots from the tops of the sprigs.

After unloading, accepted sprigs shall be carried to the planting site in moist cloth or burlap bags and kept therein until ready to be dropped into the furrows.

860.03 Mulching Material.

(a) Dry Blown Mulch.

Dry blown mulch shall be hay or straw applied at rates required in Section 656. Hay shall be native hay or Sudan grass, broom straw, coastal bermudagrass, or other materials approved by the Engineer. Straw shall be threshed straw of oats, wheat, or rye. Mulch materials shall not contain an excessive quantity of matured seeds or noxious weeds or a species which would constitute a menace to the planted species and to surrounding farm land. Mulch shall not be too fresh, or excessively brittle, or so decomposed as to retard growth of grass.

The moisture content of the mulch shall not exceed 15 % at the time that the mulch is weighed. Moisture content will be checked as directed by the Engineer.

The moisture content of the mulch will be checked in accordance with ALDOT Procedure 240, "Determination of Moisture Content in Mulching Materials".

Acceptable Tackifier Adhesives are listed on List II-20, "TACKIFIERS, MULCH CONTROL NETTING, AND HYDRAULIC MULCH PRODUCTS", of the Department's manual "Materials, Sources, and Devices with Special Acceptance Requirements". Tackifiers shall be used at the manufacturer's recommended rates when chosen for mulch stabilization. Tackifiers shall be harmless to fish, wildlife, and plants, and shall be non-toxic and non-combustible as documented through Material Safety Data Sheets and a 7 day chronic Ceriodaphnia reproduction test report. Asphalt adhesives are not acceptable for use.

Acceptable Mulch Control Netting products are listed on List II-20, "TACKIFIERS, MULCH CONTROL NETTING, AND HYDRAULIC MULCH PRODUCTS", of the Department's manual "Materials, Sources, and Devices with Special Acceptance Requirements". Mulch Control Netting shall be 100% biodegradable, be of a uniform, open, plain weave and meet the following requirements:

- Minimum Mass per Unit Area of 9 ounces per square yard (ASTM D 5261)
- Minimum Tensile Strength (Machine Direction, Dry) of 300 pounds per foot (ASTM D 4595)
- Minimum Tensile Strength (Transverse Direction, Dry) of 125 pounds per foot (ASTM D 4595)
- Minimum 50% Open Area as determined by physical measurement.

(b) Hydraulic Mulch Products.

Hydraulic Mulch Products shall consist of natural fibers with or without tackifier adhesives and/or binding agents. It shall be processed in such a manner that it will contain no growth or germination inhibiting factors and shall be dyed an appropriate color to facilitate a uniform spread of the slope by visual inspection. It shall be manufactured in such a manner that after addition and agitation in slurry tanks with soil amendments, the fibers in the material will become uniformly suspended to form a homogeneous slurry; and that when hydraulically sprayed on the ground, the material will form a ground cover; and which after application will allow the absorption of moisture and allow rainfall or mechanical watering to percolate to the underlying soil.

Hydraulic Mulch Products shall have a maximum RUSLE Cover Factor (C-Factor) of 0.20 defined as the ratio of the soil loss from a slope protected by the product to the soil loss from an unprotected or bare soil slope. At a minimum, one slope test replicate of ASTM D 6459-07 shall be conducted at an

independent laboratory accredited by the Geosynthetic Institute's, Geosynthetic Accreditation Institute's-Laboratory Accreditation Program (GAI-LAP) for this test. The Hydraulic Mulch Product shall have a minimum 200 % Vegetation Enhancement compared to the control and shall be measured in accordance with the requirements given in ASTM D 7322.

Acceptable Hydraulic Mulch Products are listed on List II-20, "TACKIFIERS, MULCH CONTROL NETTING, AND HYDRAULIC MULCH PRODUCTS", of the Department's manual "Materials, Sources, and Devices with Special Acceptance Requirements". All packaging of the mulch shall be clearly marked with the lot or batch number, material specifications, and application recommendations. Weight {mass} specifications of this material shall refer only to air dry weight {mass} of the fiber material.

860.04 Grassy Mulch Material.

(a) General.

Grassy mulch shall be obtained from the sources of the Contractor's selection and meeting the approval of the Engineer. The Contractor shall furnish such material and construct and maintain hauling roads necessary for obtaining the material, all without extra compensation.

The grass contained in the grassy mulch material shall be live growing grass as provided in Article 860.02 and shall be procured from areas where the soil is fertile as indicated by vigorous growth. The grass shall have a healthy virile root system of dense, thickly matted roots. It shall be reasonably free from obnoxious weeds or other grasses, and shall not contain any matter deleterious to its growth or which might affect its subsistence or hardiness when transplanted. The soil part of the mulch shall be the topsoil in which grass is growing and may include the 2 inches {50 mm} immediately underlying the root system provided it is identical topsoil and no part of the less friable subsoil is taken.

(b) Harvesting and Handling Grassy Mulch.

1. Harvesting Operations.

   Grassy mulch shall be taken only from an approved source. The grassy mulch shall be procured only when the soil is in a moist, friable condition. During extremely dry periods it may be necessary to water the areas from which mulch is to be taken. Previous to any other manipulations, these areas shall be grubbed clear of any bushes or stubs and closely mowed and raked to remove all weeds and long standing stems. The material thus cleaned from the sites shall be burned. Such cleaning is deemed a necessary part of this Item and not considered under the Item of "Clearing and Grubbing." If directed, this operation may be omitted if the grass is sufficiently short and the area satisfactorily cleared of obstructions. After grubbing, mowing and raking, and sprinkling, if considered necessary, the grass shall be disced until the sod has been well mangled and the topsoil loosened to the depth it is to be taken. After discing, the grassy mulch shall be cast into windrows by an approved tractor-drawn or motor-powered blade grader.

2. Loading.

   The well mixed topsoil and grass roots shall be loaded into trucks by hand shovels, power shovels, drag lines, or other mechanical loading devices. No grassy mulch shall be loaded which has been disced, but not windrowed, more than six hours or which has been windrowed more than 24 hours unless the loading operations have been interrupted by rain in sufficient quantity to wet the grassy mulch and make work impracticable. Loading shall be resumed as soon as practicable after such rain ceases. All material windrowed prior to such rain shall be loaded and placed within 24 hours after such rain ceases. In no case shall grassy mulch be used in which the grass has soured, mildewed or started to decay.

860.05 Solid Sod.

(a) General.

Solid sod shall be obtained from sources of the Contractor's selection meeting with the approval of the Engineer. The Contractor, without extra compensation, shall furnish such material and construct and maintain hauling roads necessary for obtaining the material.

The sod shall be of common Tiflawn Bermudagrass, Centipede, Myers Zoysia, Zoysia Matrella, or other approved types of native or adaptable grasses, suitable for growing in the locality of the work.

(b) Procuring and Handling Sod.

1. General.

   All sod shall be procured from areas where the soil is fertile and contains a high percentage of loamy topsoil and where the grass is well rooted and full grown and from areas that have been

grazed or mowed sufficiently to form a dense turf. (Approximately 2 inches {50 mm} in height at the time of lifting). The soil shall be free from obnoxious weeds or other grasses and shall not contain any matter deleterious to its growth. Solid sodding shall be living or seasonally dormant during the cold or dry season and have an established root system capable of continued growth. Solid sodding grown with a geotextile backing is acceptable for use at the Contractor's option with no additional compensation. Solid sodding used in channel applications shall be rolled sod.

2. Harvesting.

   Mechanical devices, such as sod cutters, may be used for cutting the sod into strips, blocks or rolls at least 12 inches {300 mm} wide, except when sod strips are specified, then they shall be at least 3 inches {75 mm} wide. Depth of sod cutting shall be such that approximately 3/4 of an inch {19 mm} of soil is removed with the turf. Care shall be exercised at all times to retain the native soil on the roots of the sod during the process of excavating, hauling, and planting.

3. Handling.

   Sections of sod shall be cut away below the root line and shall be lifted and loaded in such a manner that no tearing or breaking will occur, and unloaded by hand or approved mechanical method. Dumping from vehicles will not be permitted. All broken or dried sod shall be rejected and removed from the job.

4. Control.

   The sod shall, in general, be transplanted within three days from the time it is harvested. However, if held in temporary storage, the sod shall be spread in a shady location with the grass side up. The sod shall be sprinkled with water when and as directed. If required, it shall be covered with moist burlap, straw, or other acceptable material. Any sod permitted by the Contractor to dry out may be rejected whenever, in the judgment of the Engineer, its survival, after placing, shall have been rendered doubtful and no payment for such sod shall be made.

   In no event shall more than 10 days elapse between the cutting and planting of the sod.

   Prior to permitting sod planting, the Engineer will inspect the sod stacks for retention of native soil. Such may be accomplished by measuring the stack height and determining the average layer thickness (3/4 of an inch {19 mm} minimum).

860.06 Vines, Shrubs and Trees.

(a) General.

1. The scientific and common names of plants shall be in conformity with the approved names in "Standardized Plant Names" (current edition) prepared by the American Joint Committee on Horticultural Nomenclature.

2. Plants shall be in accordance with the American Standards for Nursery Stock (current edition), except as provided on the plans. All plants shall have normal habit of growth and shall be typically characteristic of the particular variety and species. All plants shall conform to the measurements provided, which are the minimum acceptable sizes. They shall be measured before pruning with branches in normal position. When a minimum and maximum size is provided, an average size is required. Deciduous trees shall be measured by approved calipers. Plants which hare been cut back from larger grades to meet these Specifications will not be acceptable. Plants shall be nursery grown and shall bear evidence of proper top and root pruning unless otherwise provided. No cold storage plants will be accepted. Plants shall have been growing for a period of at least one year under the same climatic conditions as exist at the location to be planted. Where the Specifications or plans permit, planting stock which has been collected, such stock shall be clean, sound stock free from decayed or decaying stumps and from fire injury.

3. For purpose of inspection, the Contractor shall give notice to the Engineer 48 hours in advance of the delivery of plant material. The Contractor shall be responsible for all certificates of inspection of plant materials that may be required by Federal, State or other authority to accompany shipments of plants. All plants shall be subject to inspection and approval by the Engineer at any place and at any time. Plants may be inspected where growing, but approval at place of growth shall not preclude the right of subsequent rejection of plants not fully meeting the requirements of the Specifications. After the award is made, the Engineer reserves the right to place Department seals on any and all materials selected, but such tagging and approval shall cover the type and body quality of the plant only, but not final acceptance. The removal and replacement of rejected plants shall be effected by the Contractor in compliance with the Specifications and shall be without extra compensation.

4. Plants and plant qualities other than those named in the Specifications will be accepted only if approved.

5. Legible labels shall be attached to all separate plants or boxes, bundles, bales, or other containers, indicating the name, size, age, or other necessary detailed information and the quantity contained in the individual bundles, boxes or bales.

(b) Planting Limitations.

Normal planting season for vines, shrubs, and trees is between December 1 and February 15 and the Contractor shall make every effort to accomplish the planting during this period. Should, however, the contract time be such that plants cannot be placed during this period, the Engineer shall direct the placement of the plants at the earliest possible time the plant areas can be made available. Under conditions that require or if the Contractor elects to place the plants out of the normal planting season, all plants shall be container grown or pre-cured and planted in accordance with the following:

Container Grown.

Container grown plants shall have been grown in its container for a minimum of eight months.

After plants are moved to their permanent location, they shall be watered in as specified, mulched, etc. Syringing down of the leaf areas shall be performed as necessary to prevent wilting, dehydration, and excessive shedding of new or old growth. This will require a period of thirty days or longer to assure that a given plant has been successfully transplanted.

Pre-Cured.

Pre-curing of plants is a technique that allows the planting of balled or burlap plant materials during period other than in the dormant period of planting season specified. The following procedure shall generally be followed to precure or hardening off a plant.

1. Specified plants shall be dug and placed unpruned in a lath or green house.
2. The ball shall be covered with well rotted sawdust.
3. Humidity shall be maintained to such a degree that wilting or dehydration does not occur.
4. Spray nozzles shall be of mist type, connected to suitable interrupter devices if necessary, so that water logging of the plant balls does not occur.
5. After root hairs have formed, as evidenced by their emergence through the burlap, and with new and old top growth in a health, turgid condition, the plants shall be transplanted to their permanent location.
6. This pre-curing period shall be a minimum of thirty days.
7. Leaf drop or defoliation shall be limited to one-fourth the total leaves.
8. After plants are moved to their permanent location, they shall be watered, mulched, etc. Syringing down of the leaf areas shall be performed as necessary to prevent wilting, dehydration, and excessive shedding of new or old growth. This will require a period of 30 days or longer to assure that a given plant has been successfully transplanted.

Any plantings accomplished outside of the normal planting season shall be inspected regularly and any plant found defective shall be removed and immediately replaced with the same size and kind in the same manner as originally provided.

Any additional cost involved in planting out of season due either to the Contractor's inability to schedule his work properly or contract time requirements shall be considered incidental to the work and no additional compensation will be allowed.

Planting will not be permitted during periods when the ground is frozen.

(c) Digging and Transportation.

1. All plants shall be dug with reasonable care and skill immediately before shipping, avoiding all possible injury to, or loss of roots. Plants shall be of the size, and with balls or roots spread, as shown on the plans. After plants are dug, their roots shall not be permitted to dry out, and they shall not be exposed to artificial heat or freezing temperatures.

2. During transportation, all plants shall be packed or protected in such a manner as to ensure adequate protection from sun, wind, and climatic or seasonal injuries. All bare-root plants shall have their roots carefully protected by wet straw, moss, or other suitable material. Tarpaulins or other covers shall be placed over plants when transported by truck or in an open freight car. Shipments made in box cars shall be adequately ventilated to prevent sweating. The head of each tree shall be tied in carefully to prevent fracturing or cracking the branches.

3. Previous to shipment and after delivery to the project, all plants shall be properly protected. Bare-root plants shall be heeled-in in trenches with the bundles opened and the plants spaced separately and all roots covered. Balled and burlapped, and balled and platformed plants, shall

have their earth balls protected by earth or wet cloth or straw. Where possible all plants shall be stored in a well-ventilated and shaded place and protected from wind and sun.

(d) Trees.

1. Trees shall be of the size and kind designated by the plans, have a straight trunk with a well-branched, symmetrical top, and with leader intact. Trees shall have no fresh cuts of limbs over 3/4 of an inch {19 mm} which have not completely calloused over, no cut back trees, and no abrasions of the bark. Trees must be free from insect and disease injury. Trees injured in transit or delivered in an unsatisfactory manner will be rejected. Trees must have good fibrous root systems. All root cuts must be cleanly cut.
2. At the time of digging, bare-root trees (B.R.) must be puddled in a clay solution of proper consistency to coat and adhere to all parts of the root system. Any tree may be supplied balled and burlapped instead of bare-root at the unit price bid.
3. Balled and burlapped trees (B & B) shall be adequately balled with firm, natural balls of sufficient size to ensure the growth of the plants or cut to size shown on the plans. Balls shall be firmly wrapped with burlap or other approved strong cloth and firmly tied with rope or other satisfactory material. No balled plant will be acceptable if cracked or broken before or during the process of planting, and no plant will be acceptable which is handled by the plant itself and not by the ball. All fibrous and pliable roots encountered in trenching around the ball shall be cut off flush with the outer side of the trench, the ground in the trench loosened with spading fork, and the flexible roots shall be immediately wrapped in burlap, moss, or straw and bound against the side of the ball. Only stiff roots may be cut off flush with the ball. The ball of earth for each tree shall be of sufficient depth to include all lateral roots.
4. Balled and platformed trees (B & P) shall be balled as provided for balled and burlapped trees. Platforms shall be square or octagonal shaped in a size slightly larger than the diameter of the bottom of the soil weight {mass}, inserted under each ball and securely lashed to the ball by means of ties from the platform corners to the rope collar on top of the ball.

(e) Shrubs.

Shrubs shall be of the size and kind designated by the plans. Bare-root shrubs shall have good fibrous root systems. Balled and burlapped shrubs shall be vigorous, well furnished plants of uniform quality and must have fibrous root systems. Plants provided as sods or clumps shall be collected from good soil which has produced a fibrous root system typical of the nature of the plant. The sods shall be dug with earth and incidental vegetation adhering to the roots. If the soil or habit of the root growth is such that the roots are not adequately protected, the sods shall be wrapped in burlap or other suitable material.

(f) Vines and Perennials.

Vines and perennials shall be of the size and kind designated by the plans. Bare-root vines shall be vigorous, well furnished plants with good vigorous root systems, puddled before delivery or otherwise protected by an acceptable method. Pot-grown plants (P.G.) shall be vigorous well-developed plants, well established in pots with sufficient roots to hold the earth together intact after removal from containers and at the same time not to be root-bound. Upon permission of the Engineer due to lateness of planting in the spring season causing a hold-over of the planting of vines to the next season, the Contractor may furnish and plant potted plants of the kinds of vines designated as bare-root, provided the potted plants are at least one year old, the pots 2.5 inches {63 mm} minimum diameter, and two plants for the one ordered are furnished and planted in the same pocket holes or beds as specified. The two plants will be paid for at the unit price for one plant. Balled and burlapped vines shall be vigorous, well-developed plants. Perennials shall be field grown unless otherwise provided.

(g) Pine Seedlings.

Pine seedlings shall be Loblolly Pine for the North Alabama Planting Zone and Slash Pine in South Alabama Planting Zone, unless otherwise shown on the plans or in the proposal. Seedlings shall be approximately one year old and 6 to 12 inches {150 to 300 mm} high, except that any longleaf seedlings shall be root pruned and needle clipped.

Pine seedlings that are shipped in bales shall be protected from the sun, wind, and freezing weather at all times before planting. The bales shall be stacked loosely to permit free circulation of air and not more than two bales high. They shall be watered on arrival and every two days thereafter, or as directed. Seedlings from damaged or broken bales shall be "heeled in" by cutting V-bottom trenches approximately 6 inches {150 mm} deep, spreading the pines along the trench with the roots

down. Roots shall be covered with fine soil, leaving the tops exposed. Seedlings shall be watered frequently enough to keep the soil moist.

860.07 Seed Inoculating Material.

Inoculating materials as required for coating certain legume seed immediately before sowing shall be an approved commercial culture manufactured by a reputable concern and of the culture group appropriate for the kind of seed to be treated. The material as received on the work shall be fresh stock designated for the current season, packaged and sealed to protect bacteria and ensure against moisture loss.

860.08 Plant Topsoil (Topsoil For Backfilling Plant Pits).

Plant topsoil shall be composed of four parts of soil containing not more than 35% clay and not less than 15% nor more than 75% sand, one part mulching material (as defined in Subarticle 860.03(c), 8 pounds {4 kg} of 8-8-8 Commercial Fertilizer, and 5 pounds {2 kg} of agriculture limestone per cubic yard {cubic meter} (mineral additive may be adjusted to fit soil test results).

In lieu of the off-site topsoil noted above, with the approval of the Engineer, material from the plant pit modified with mineral additives as directed may be used.

860.09 Tree Root Protection Material.

The material for root protection shall be aggregate of approved quality, suitably graded from 3/8 to 5 inches {9 to 125 mm} in size. The material may be any suitable aggregate broken to suitable size, or may be gravel, crushed stone, slag, or broken concrete.

860.10 Miscellaneous Materials For General Planting Operations.

(a) Bracing and Anchor Stakes.

Bracing stakes shall be of southern yellow pine or other approved wood, sized in accordance with plan requirements. Stakes shall have a minimum allowable deflection of ten percent. All stakes shall be free from insects and fungi. Anchor stakes or deadmen shall be of the quality and sizes required for the operations calling for their use.

(b) Wire and Bracing Materials.

Wire shall be galvanized steel or aluminum, No. 9, No. 10, or No. 12, A.S.&W. gage as specified. The size and quality of cables, turnbuckles, thimbles, lag hooks, eye bolts, rods, washers, and nuts shall be as approved.

(c) Paper and Twine.

Wrapping paper for trees shall be krinkle-kraft or equal, waterproof paper, 30-30-30, in 4 inch {100 mm} strips. The tying material to be used in wrapping trees shall be jute twine not less than two ply for trees 3 inches {75 mm} or less in diameter, and three ply for trees over 3 inches {75 mm} in diameter.

(d) Tree Paint.

Paint used for tree wounds shall be approved antiseptic, waterproof, adhesive, and elastic, such as asphaltum water emulsion, gutta percha, and certain oils with a fungicide and which remains tacky for four hours and retains elasticity after setting when tested under the heat of the hand. It shall not contain kerosene, coal tar, creosote, or other material harmful to cambium or living tissue.

(e) Wire Protective Hose.

Hose shall be 1/2, 5/8, or 3/4 of an inch {13, 16, or 19 mm} in diameter, suitable for the purpose intended, or other approved material (hose may be second-handed).

(f) Burlap.

Burlap shall have a weight {mass} of at least 8 ounces per square yard {0.27 kg/m^2}.

(g) Drain Tile Pipe.

Drain tile pipe shall meet the requirements of Section 853. The diameter of the tile shall be 6 inches {150 mm} unless otherwise specified on the plans.

860.11 Rolled and Hydraulic Erosion Control Products.

(a) Types of Erosion Control Products.

1. Temporary Rolled Erosion Control Products (RECPs).
   Temporary RECPs shall be composed of photodegradable or biodegradable mesh, netting fibers, yarns or twines. Components shall be mechanically interlocked or chemically bonded together to form a continuous matrix of material.
2. Temporary Hydraulic Erosion Control Products (HECPs).
   Temporary HECPs shall be composed of photodegradable or biodegradable natural or polymer fibers that chemically bond together and form a continuous matrix of material.
3. Permanent Rolled Erosion Control Products (RECPs).
   Permanent RECPs shall be turf reinforcement mats and shall have sufficient thickness, strength and void space for permanent erosion protection. Permanent RECPs shall have a minimum UV Stability of 80% retention of tensile strength at 500 hours of exposure measured in accordance with the requirements given in ASTM D 4355 "Standard Test Method for Deterioration of Geotextiles by Exposure to Light, Moisture and Heat in a Xenon Arc Type Apparatus".

(b) Required Performance of Erosion Control Products.

The types of erosion control products and the performance requirements for each product are given in the following table.

PERFORMANCE REQUIREMENTS OF EROSION CONTROL PRODUCTS

Product Application	ECP Type	Maximum Allowable C-Factor[1]	Minimum Shear Stress Capacity[2] (Pounds per Square Foot)	Minimum Vegetation Enhancement[3]
Slope	S4	0.10	-	200 %
	S3	0.05	-	
	S2	0.01	-	
	S1	0.005	-	
Channel	C2	-	2.0	200 %
	C4	-	4.0	
	C6	-	6.0	
	C8	-	8.0	
	C10	-	10.0	

- NOTE 1: The C-Factor shall be measured in accordance with the requirements given in ASTM D 6459-07 "Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Performance in Protecting Hillslopes from Rainfall-Induced Erosion". The C-Factor is the cover factor as commonly used in the Revised Universal Soil Loss Equation and is defined as the ratio of the soil loss from a slope protected by the ECP to the soil loss from an unprotected or bare soil slope, as reported by the American Association of State Highway and Transportation Officials, National Transportation Product Evaluation Program, Erosion Control Products (AASHTO NTPEP).
- NOTE 2: The Shear Stress Capacity of an ECP shall be measured in accordance with the requirements given in ASTM D 6460-07 "Standard Test Method for Determination of Rolled Erosion Control Product (RECP) Performance in Protecting Earthen Channels from Stormwater-Induced Erosion". The Shear Stress Capacity is defined as the limiting shear stress which causes an average of 0.5 inch of soil loss over the entire channel bottom, as reported by the American Association of State Highway and Transportation Officials, National Transportation Product Evaluation Program, Erosion Control Products (AASHTO NTPEP). Temporary products shall at a minimum be tested under unvegetated conditions. Permanent products shall be tested under vegetated conditions.
- NOTE 3: The Vegetation Enhancement of an ECP is defined as the percentage of vegetation improvement compared to the control. The Vegetation Enhancement of an ECP shall be measured in accordance with the requirements given in ASTM D 7322 "Determination of

Temporary Degradable Rolled Erosion Control Product (RECP) in Encouraging Seed Germination and Plant Growth".

860.12 Fertilizer.

(a) General.

The fertilizer or fertilizers used shall be of the type and grade provided herein, on the plans and/or the proposal form and when tested by current methods adopted by the Association of Official Agricultural Chemists, shall comply with Alabama Fertilizer Laws, Title 2, Sections 282-300, Alabama Code of 1940, as amended.

(b) Manure.

Lot or stable manure shall consist of animal droppings which may be mixed with not over 25 percent, by volume, of bedding material and shall be free of materials toxic to plant growth, and reasonably free from refuse. It shall be well rotted and not have lost its strength by leaching or injurious fermentation. It shall not contain an excess amount of water and shall be of such consistency as to mix readily with soil and capable of being broken down or made fine.

(c) Manufactured Fertilizers.

1. Manufactured fertilizer shall be standard commercial products and shall contain not less than the percentages by weight {mass} of the ingredients set out in the following table:

TYPE	Nitrogen N	Phosphorus P_2O_5	Potash K_2O
15-0-15	15		15
13-13-13	13	13	13
10-10-10	10	10	10
8-8-8	8	8	8
0-14-14	0	14	14
4-12-12	4	12	12
4-16-8	4	16	8
Super Phosphate		18.0	
Ammonium Nitrate	33.5		
Ammonium Sulphate	20.5		
Sodium Nitrate	16.0		
Potassium Chloride			60.0

2. An allowance of five percent variation or tolerance of the above proportions will be permitted based on relative commercial value.
3. Nitrogen may be derived from any nitrogen-carrying material approved by the State Commissioner of Agriculture and Industries.
4. Cottonseed meal shall contain 41 percent protein or 6.56 percent nitrogen.
5. All fertilizers shall be transported in containers which will ensure proper protection, handling, and which are commonly used with such fertilizers.
6. Fertilizers containing pesticide materials produced by a recognized, responsible manufacturer and prequalified for use by the State Department of Agriculture and Industries or the U.S. Department of Agriculture may be used with the approval of the Engineer.

(d) Agricultural Limestone.

All limestone for agricultural liming purposes shall be crushed or ground to such a degree of fineness that 90 percent of the material will pass through a 10 {2.00 mm} mesh screen and not less than 50 percent of the material will pass through a 60 {250 µm} mesh screen. All such limestone shall also have a neutralizing value of 90 percent calcium carbonate or better.

(e) Basic Slag.

Basic slag shall be ground open hearth basic slag containing not less than the percentage by weight {mass} of the following ingredients.

- P_2O_5 (Available) .....2.0 Iron Oxide 20.0
- Magnesium Oxide .....6.0 Calcium Oxide 18.0
- Manganese Oxide .....2.0 Neutralizing Value 55.0

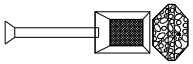
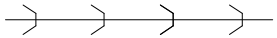
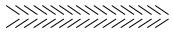
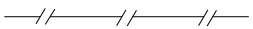
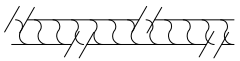
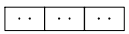
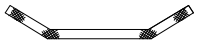
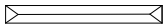
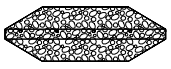
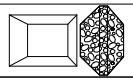
At least 80 percent shall pass through a 100 {150 µm} mesh screen and at least 90 percent shall pass a 50 {300 µm} mesh screen.

When basic slag is substituted for limestone in seeding, sprigging, and/or solid sod planting operations, the amount applied shall be adjusted to equal the neutralizing effect of the specified amount of limestone as defined in Subarticle 860.12(d). Blends of basic slag and other elements, such as 0-6-6, 0-5-6 +.05B and 0-4-12 +.05, may be used and the added elements credited to the total element requirements for plant food.

860.13 Water.

Water free from substances harmful to the growth of plantings will be approved as suitable for use with roadway improvement materials.

860.14 Blank.

BEST MANAGEMENT PRACTICE (BMP)	SPECIAL DRAWING NUMBER	PLAN SYMBOL	MATERIALS REQUIREMENT REFERENCES	CONSTRUCTION REQUIREMENT REFERENCES	USAGE GUIDELINES
TEMPORARY SLOPE DRAIN PIPE WITH ROCK DITCH CHECK AND SUMP EXCAVATION	ESC-200-2		665.02, 801, 810, 814 ALDOT LIST II-3	665.03, 665.04, 665.05	A TEMPORARY SLOPE DRAIN WITH RIPRAP DITCH CHECK AND SUMP EXCAVATION IS CONSTRUCTED WITH A FLEXIBLE PIPE OR CONDUIT EXTENDING FROM THE TOP OF A CUT OR FILL SLOPE INTO AN EXCAVATED SEDIMENT TRAPPING SUMP WITH A ROCK DITCH CHECK DOWN SLOPE OF THE SUMP. THE PURPOSE OF THE TEMPORARY SLOPE DRAIN IS TO CONVEY STORMWATER RUNOFF DOWN THE FACE OF THE SLOPE WITHOUT CAUSING EROSION ON THE SLOPE.
TEMPORARY EARTH BERM	ESC-200-2		665.02	665.03, 665.04, 665.05	A TEMPORARY EARTH BERM CONSISTS OF A CHANNEL CONSTRUCTED ACROSS A SLOPE AND BACKED ON THE LOWER SIDE BY AN EARTHEN RIDGE. THE TEMPORARY EARTH BERM IS USED TO REDUCE SLOPE LENGTH AND DIVERT RUNOFF TO STABILIZED OUTLETS SUCH AS A TEMPORARY SLOPE DRAIN PIPE.
BRUSH BARRIER	ESC-200-3		665.02	665.03, 665.04, 665.05	BRUSH BARRIERS ARE TEMPORARY SEDIMENT TRAPPING STRUCTURES CONSTRUCTED AT THE PERIMETER OF DISTURBED AREAS THAT ARE MADE FROM RESIDUE OF LAND CLEARING AND GRUBBING. BRUSH BARRIERS CONTROL OFF SITE TRANSPORT OF SEDIMENTS UNTIL STABILIZATION OF DISTURBED AREAS CAN BE ACHIEVED.
SILT FENCE SEDIMENT BARRIER	ESC-200-3 ESC-200-4		665.02, AASHTO M288 ALDOT LIST II-3	665.03, 665.04, 665.05	A SILT FENCE SEDIMENT BARRIER CONSIST OF AN ENTRENCHED FILTER FABRIC STRETCHED ACROSS A WIRE BACKING THAT IS SUPPORTED BY POSTS. THE PURPOSE OF SILT FENCE SEDIMENT BARRIERS IS TO INTERCEPT AND TRAP SEDIMENT AS WELL AS DECREASE RUNOFF VELOCITIES OF SHEET FLOW AND MODERATE CHANNEL FLOWS.
SEDIMENT RETENTION BARRIER	ESC-200-5		665.02 ASHTO M288 ALDOT LIST-3	665.03 665.04 665.05	SEDIMENT RETENTION BARRIERS ARE USED AS A PERIMITER CONTROL MEASURE TO PROVIDE PROTECTION TO CLEAN WATER RUNNING THROUGH THE PROJECT OR OTHER CRITICAL AREAS.
DITCH CHECK STRUCTURES	ESC-300-1	SEE SYMBOLS BELOW FOR EACH CHECK STRUCTURE	665.02	665.03, 665.04, 665.05	DITCH CHECKS ARE INSTALLED TO CONTROL RUNOFF VELOCITY AND THUS REDUCE EROSION AND PROVIDE FOR TRAPPING OF SEDIMENTS. SELECTION OF THE APPROPRIATE DITCH CHECK IS A FUNCTION OF DRAINAGE AREA, DITCH GRADIENT AND SOIL TYPE.
HAY BALE DITCH CHECK	ESC-300-2		665.02	665.03, 665.04, 665.05	HAY BALES ARE USED TO INTERCEPT LOW VOLUME FLOWS IN LOW TO MODERATE GRADIENT DITCHES.
SAND BAG DITCH CHECK	ESC-300-3		665.02, 801	665.03, 665.04, 665.05	SAND BAG DITCH CHECKS ARE USED FOR VELOCITY REDUCTION AND MINIMAL SEDIMENT TRAPPING IN CONCRETE PAVED DITCHES OR IN DITCHES THAT HAVE ROCKY BOTTOMS. SAND BAGS MAY ALSO BE USED AS A SEDIMENT BARRIER ON HARD SURFACES.
WATTLE DITCH CHECK	ESC-300-4		665.02, ALDOT LIST II-24	665.03, 665.04, 665.05, MANUFACTURER LITERATURE	WATTLE DITCH CHECKS ARE APPROPRIATE FOR VELOCITY REDUCTION AND CONTROL OF SEDIMENT TRANSPORT UNDER LOW TO MEDIUM FLOW CONDITIONS.
SILT DIKE DITCH CHECK	ESC-300-5		665.02, MANUFACTURER LITERATURE	665.03, 665.04, 665.05, MANUFACTURER LITERATURE	SILT DIKE DITCH CHECKS CAN BE USED IN DITCHES WITH CONCENTRATED FLOWS WITHIN THE CLEAR ZONE WHERE RIPRAP CAN NOT BE USED.
ROCK DITCH CHECK	ESC-300-6		665.02, 801, 810, 814, PLAN NOTE ALDOT LIST II-3	665.03, 665.04, 665.05	ROCK DITCH CHECKS ARE USED PRIMARILY IN HIGH VELOCITY AND LARGE VOLUME DITCH FLOW CONDITIONS TO REDUCE EROSION AND TRAP MINIMAL VOLUMES OF SEDIMENT. AGGREGATE DITCH CHECKS CAN BE USED ONLY IN LOW VELOCITY FLOWS AND SERVE AS EFFECTIVE SEDIMENT TRAPS. SIZES OF ROCK WILL BE DESIGNATED ON THE PLANS.
ROCK DITCH CHECK WITH SUMP EXCAVATION	ESC-300-7		665.02, 801, 810, 814, PLAN NOTE ALDOT LIST II-3	665.03, 665.04, 665.05	ROCK DITCH CHECK WITH SUMP EXCAVATION CAN BE PLACED IN DITCHES FOR ON-SITE SEDIMENT TRAPPING.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

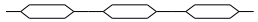
REVISIONS:
1. Updated Chart on 8-23-2011 by J.F.T.
2. Revised and Updated Chart on 10-20-2014 by J.F.T.
3. Removed "SILT FENCE DITCH CHECK, ESC-200 (SHT 8 OF 8)" and inserted "SEDIMENT RETENTION BARRIER, ESC-200 (SHT 5 OF 5)" on 8-10-2016 by J.F.T.
4. Updated Special Drawing No. from ESC-100 (SHEET 1 OF 2) to ESC-100-1 and others using same pattern by J.F.T. & J.M.M.

Bureau Std Engr: D.J.W.
DRAWN BY:
DATE DRAWN: 2006
REVISED DATE: 7-7-2021

DESIGN BUREAU SPECIAL DRAWING
BEST MANAGEMENT PRACTICE REFERENCE MATRIX

SPECIAL DRAWING NO: ESC-100-1

INDEX NO: 66501

BEST MANAGEMENT PRACTICE (BMP)	SPECIAL DRAWING NUMBER	PLAN SYMBOL	MATERIALS REQUIREMENT REFERENCES	CONSTRUCTION REQUIREMENT REFERENCES	USAGE GUIDELINES
SILT FENCE DITCH CHECK	ESC-300-8		665.02, AASHTO M288 ALDOT LIST II-3	665.03, 665.04, 665.05	SILT FENCE DITCH CHECKS ARE USED TO INTERCEPT LOW VOLUME FLOWS IN LOW TO MODERATE GRADIENT DITCHES.
INLET PROTECTION	ESC-400-1		665.02	665.03, 665.04, 665.05	CONFIGURATIONS MAY BE ADJUSTED WITH APPROVAL OF THE ENGINEER FOR TRAVELWAY SAFETY, WATER FLOW, SOIL OR INSTALLATION CHALLENGES.
AGGREGATE INLET PROTECTION	ESC-400-2	✳	665.02, 801	665.03, 665.04, 665.05	THE ELEVATION OF THE TOP OF THE REQUIRED STONE BERM SHALL BE A MINIMUM OF 1.5 FEET ABOVE THE ELEVATION OF THE INLET WORKING POINT AND A MINIMUM OF 6 INCHES BELOW THE ELEVATION OF THE OUTSIDE EDGE OF THE INSIDE SHOULDER.
WATTLE INLET PROTECTION	ESC-400-3	✳	665.02, ALDOT LIST II-24	665.03, 665.04, 665.05,	WATTLE INLET PROTECTION PROVIDES SEDIMENT TRAPPING BY PONDING STORMWATER TO A DEPTH EQUAL TO OR LESS THAN THE WATTLE DIAMETER.
SAND BAG INLET PROTECTION	ESC-400-4	✳	665.02, 801	665.03, 665.04, 665.05	SAND BAG INLET PROTECTION PROVIDES SEDIMENT TRAPPING BY PONDING STORMWATER TO A DEPTH EQUAL TO OR LESS THAN THE STACKED HEIGHT.
FLOATING BASIN BOOM	ESC-501		665.02, MANUFACTURER LITERATURE	665.03, 665.04, 665.05, MANUFACTURER LITERATURE	A FLOATING BASIN BOOM IS A FLOATING IMPERMEABLE TEXTILE BARRIER WHICH MINIMIZES SEDIMENT TRANSPORT WITHIN A WATERBODY AND MAY BE USED FOR UPLAND SEDIMENT CONTROL REDUNDANCY.
STABILIZED CONSTRUCTION ENTRANCE	ESC-502		665.02, 801	665.03, 665.04, 665.05	STABILIZED CONSTRUCTION ENTRANCES ARE INSTALLED AT POINTS OF VEHICULAR INGRESS AND EGRESS. THE STABILIZED CONSTRUCTION ENTRANCES REDUCE THE AMOUNT OF SEDIMENT TRANSPORTED ONTO PAVED PUBLIC TRAVEL WAYS BY CONSTRUCTION EQUIPMENT AND OTHER MOTOR VEHICLES.
TEMPORARY DEWATERING STRUCTURE	ESC-503	✳✳	107.13, CONTRACTOR DISCRETION	107.13, 524.03 MANUFACTURER LITERATURE	TEMPORARY DEWATERING STRUCTURES ARE USED TO CAPTURE SEDIMENT THAT MAY BE PRESENT IN DEWATERING DISCHARGES AND TO REDUCE DISCHARGE VELOCITY SUFFICIENTLY TO PROTECT DOWN SLOPE AREAS FROM EROSION. FILTER BAGS ARE USED WHEN DISCHARGING POTENTIALLY SEDIMENT LADEN WATER TO SENSITIVE WATER BODIES OR IN URBAN AREAS.
TEMPORARY CULVERT STREAM CROSSING	ESC-504	✳✳	107.13, CONTRACTOR DISCRETION	107.13, 107.21	A TEMPORARY STREAM CROSSING PROVIDES A MEANS FOR VEHICLES AND HEAVY EQUIPMENT TO SAFELY CROSS A WATERCOURSE WHILE MINIMIZING DAMAGE TO STREAMS AND WETLANDS. AN EXAMPLE IS PROVIDED WHICH MAY BE MODIFIED OR ADOPTED BY THE CONTRACTOR.
TEMPORARY DIVERSIONS	ESC-505 ESC-506	✳✳	107.13, CONTRACTOR DISCRETION	107.13, 107.21, 524.03	TEMPORARY DIVERSIONS ARE USED TO DIVERT STREAM FLOW AROUND CONSTRUCTION WORK UNTIL PERMANENT DRAINAGE STRUCTURES ARE COMPLETED.
SEDIMENTATION BASIN	ESC-507	✳✳✳	665.02, 659.02, 860.11 ALDOT LIST II-11 ALDOT LIST II-24	665.03, 665.04, 665.05, MANUFACTURER LITERATURE	SEDIMENTATION BASINS ARE USED TO REDUCE TURBIDITY OF CONSTRUCTION STORMWATER RUNOFF DURING GRADING.
FLOCCULANT	ESC-508	✳✳✳✳	665.02, 672.02 ALDOT LIST II-24	665.03, 672.03, MANUFACTURER LITERATURE	FLOCCULANT IS USED TO REDUCE TURBIDITY OF CONSTRUCTION STORMWATER RUNOFF DURING GRADING.
EROSION CONTROL PRODUCTS	ESC-509		659.02, 860.11, ALDOT LIST II-11	659.03, 659.04, 659.05	EROSION CONTROL PRODUCTS ARE USED TO PROTECT SLOPES AND CHANNELS. EROSION CONTROL PRODUCTS ARE USED TO CREATE CONDITIONS THAT ASSIST THE ESTABLISHMENT OF VEGETATION. LOCATIONS SHOWN ON PLANS SHOULD BE BASED ON GRADIENT, SOIL, LONGEVITY AND HYDROLOGY. EROSION CONTROL PRODUCTS WILL GENERALLY BE REQUIRED ON 2H:1V OR STEEPER SLOPE LENGTHS MORE THAN 15 FEET.

NOTE:

✳ 1. ONLY ONE INLET PROTECTION SYMBOL IS SHOWN ON THE PLANS. CONSTRUCTION PHASING AND SITE CONDITIONS WILL DICTATE WHICH TYPE OF INLET PROTECTION SHOULD BE INSTALLED.

NOTE:

✳✳ 1. TEMPORARY DEWATERING STRUCTURE, TEMPORARY STREAM CROSSING, AND TEMPORARY DIVERSIONS USE AND LOCATION WILL BE AT CONTRACTOR DISCRETION UNLESS SPECIFICALLY MADE A PART OF THE CONTRACT.

NOTE:

✳✳✳ 1. SEDIMENTATION BASINS ARE DRAWN TO SCALE ON THE PLANS.

NOTE:

✳✳✳✳ 1. FLOCCULANT TO BE APPLIED AT THE DIRECTION OF THE ENGINEER.

NOT TO SCALE

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Updated Chart on 8-23-2011 by J.F.T.
2. Updated Chart line positioning on 9-24-2012 by J.F.T.
3. Updated, Revised Chart and added "**** Note on 10-20-2014 by J.F.T.
4. Added Sediment Retention Barrier to matrix on 10-6-2015 by L.V.S.
5. Replaced "SEDIMENT RETENTION BARRIER, ESC-200 (SHT 5 OF 5)" and inserted "SILT FENCE DITCH CHECK, ESC-300 (SHT 8 OF 8)" on 8-10-2016 by J.F.T.
6. Updated Special Drawing No. from ESC-100 (SHEET 2 OF 2) to ESC-100-2 and others usins same pattern J.F.T. & J.M.M.

Bureau Std Engr: D.J.W.
DRAWN BY:
DATE DRAWN: 2006
REVISED DATE: 7-7-2021

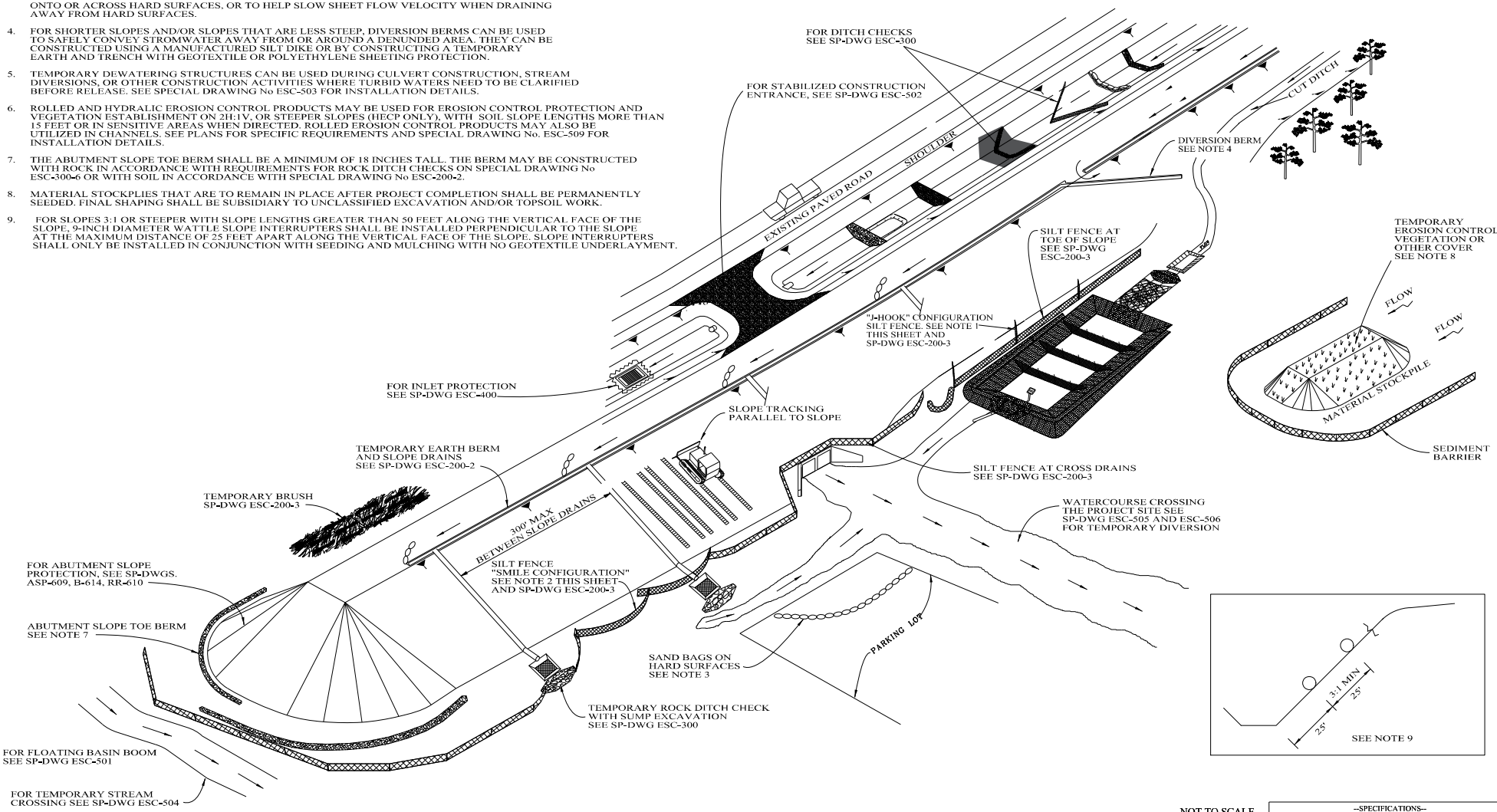
DESIGN BUREAU SPECIAL DRAWING
BEST MANAGEMENT PRACTICE REFERENCE MATRIX

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

SPECIAL DRAWING NO	INDEX NO
ESC-100-2	66502

NOTES:

1. "J HOOK" CONFIGURATION SILT FENCE APPLICATIONS ARE TO BE USED IN CONJUNCTION WITH PERIMETER SILT FENCE WHEN STORMWATER RUNOFF IS IN TWO DIRECTIONS (DOWN A FILL SLOPE AND DOWN GRADIENT ALONG THE RIGHT-OF-WAY).
2. "SMILE CONFIGURATION" APPLICATIONS ARE TO BE USED AS PERIMETER SILT FENCE WHEN THERE IS ONE-DIRECTIONAL FLOW DOWN A SLOPE.
3. SAND BAGS CAN BE USED AS DIVERSION BERMS TO PREVENT SEDIMENT FROM BEING WASHED ONTO OR ACROSS HARD SURFACES, OR TO HELP SLOW SHEET FLOW VELOCITY WHEN DRAINING AWAY FROM HARD SURFACES.
4. FOR SHORTER SLOPES AND/OR SLOPES THAT ARE LESS STEEP, DIVERSION BERMS CAN BE USED TO SAFELY CONVEY STROMWATER AWAY FROM OR AROUND A DENUNDED AREA. THEY CAN BE CONSTRUCTED USING A MANUFACTURED SILT DIKE OR BY CONSTRUCTING A TEMPORARY EARTH AND TRENCH WITH GEOTEXTILE OR POLYETHYLENE SHEETING PROTECTION.
5. TEMPORARY DEWATERING STRUCTURES CAN BE USED DURING CULVERT CONSTRUCTION, STREAM DIVERSIONS, OR OTHER CONSTRUCTION ACTIVITIES WHERE TURBID WATERS NEED TO BE CLARIFIED BEFORE RELEASE. SEE SPECIAL DRAWING No ESC-503 FOR INSTALLATION DETAILS.
6. ROLLED AND HYDRALIC EROSION CONTROL PRODUCTS MAY BE USED FOR EROSION CONTROL PROTECTION AND VEGETATION ESTABLISHMENT ON 2H:1V, OR STEEPER SLOPES (HECP ONLY), WITH SOIL SLOPE LENGTHS MORE THAN 15 FEET OR IN SENSITIVE AREAS WHEN DIRECTED. ROLLED EROSION CONTROL PRODUCTS MAY ALSO BE UTILIZED IN CHANNELS. SEE PLANS FOR SPECIFIC REQUIREMENTS AND SPECIAL DRAWING No. ESC-509 FOR INSTALLATION DETAILS.
7. THE ABUTMENT SLOPE TOE BERM SHALL BE A MINIMUM OF 18 INCHES TALL. THE BERM MAY BE CONSTRUCTED WITH ROCK IN ACCORDANCE WITH REQUIREMENTS FOR ROCK DITCH CHECKS ON SPECIAL DRAWING No ESC-300-6 OR WITH SOIL IN ACCORDANCE WITH SPECIAL DRAWING No ESC-200-2.
8. MATERIAL STOCKPLIES THAT ARE TO REMAIN IN PLACE AFTER PROJECT COMPLETION SHALL BE PERMANENTLY SEEDED. FINAL SHAPING SHALL BE SUBSIDIARY TO UNCLASSIFIED EXCAVATION AND/OR TOPSOIL WORK.
9. FOR SLOPES 3:1 OR STEEPER WITH SLOPE LENGTHS GREATER THAN 50 FEET ALONG THE VERTICAL FACE OF THE SLOPE, 9-INCH DIAMETER WATTLE SLOPE INTERRUPTERS SHALL BE INSTALLED PERPENDICULAR TO THE SLOPE AT THE MAXIMUM DISTANCE OF 25 FEET APART ALONG THE VERTICAL FACE OF THE SLOPE. SLOPE INTERRUPTERS SHALL ONLY BE INSTALLED IN CONJUNCTION WITH SEEDING AND MULCHING WITH NO GEOTEXTILE UNDERLAYMENT.



NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

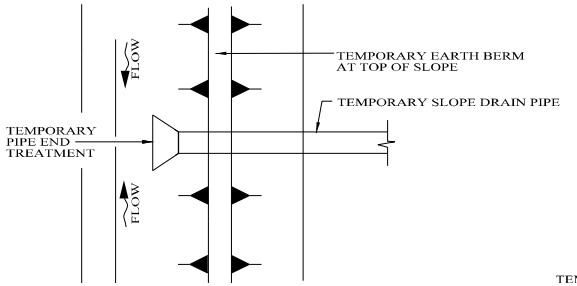
REVISIONS:
1. Revised Note 6 and Adjusted graphics of "TEMPORARY ROCK DITCH CHECK on 10-29-2014 by J.F.T.
2. Revised Note 7 from "SHEET 2 OF 4" to "SHEET 2 OF 5" on 8-10-2016 by J.F.T.
3. Updated Special Drawing No. from ESC-200 (SHEET 1 OF 5) to ESC-200-1 and others using same pattern on 10-31-2016 by J.F.T. & J.M.M.
4. Moved the stockpile details further from the stream on 7-13-2021 by D.J.W.
5. Added Note 9 and detail showing 3:1 max detail in bottom right area on 06-21-2022 by J.F.T.
6. Added Geotextile Fabric to Wattle Ditch Check and Revised Note 9 on 09-24-2024 by J.F.T.
7. Removed and Replaced Note 6 on 08-27-2025 by J.F.T

Bureau Std Engr:	G.L.D.
DRAWN BY:	J.F.T.
DATE DRAWN:	2006
REVISED DATE:	8-27-2025

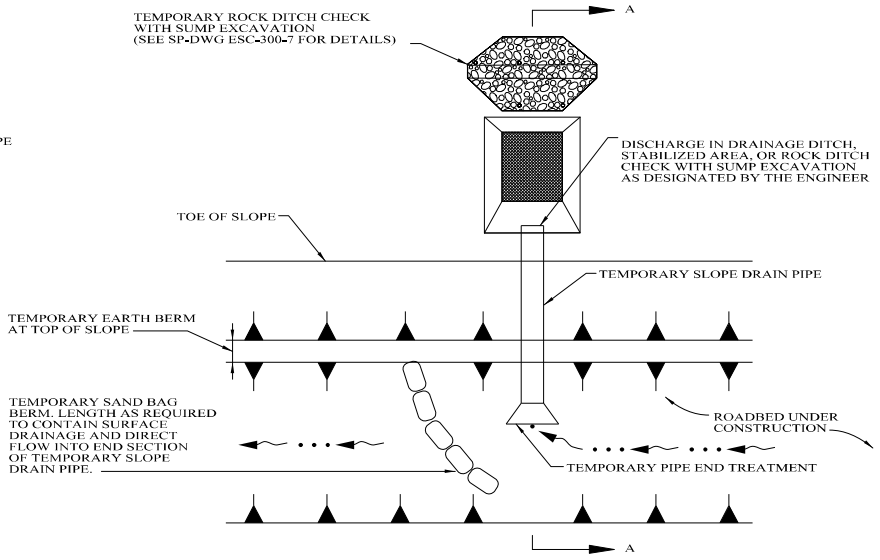
DESIGN BUREAU SPECIAL DRAWING

TYPICAL TEMPORARY EROSION/ SEDIMENT CONTROL APPLICATIONS

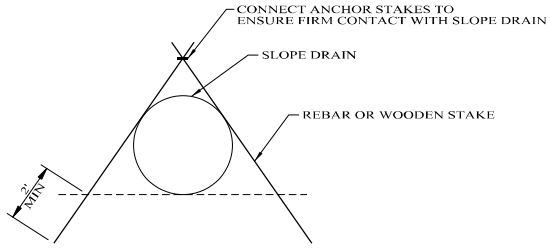
SPECIAL DRAWING NO	INDEX NO
ESC-200-1	66505



PLAN AT LOW POINT

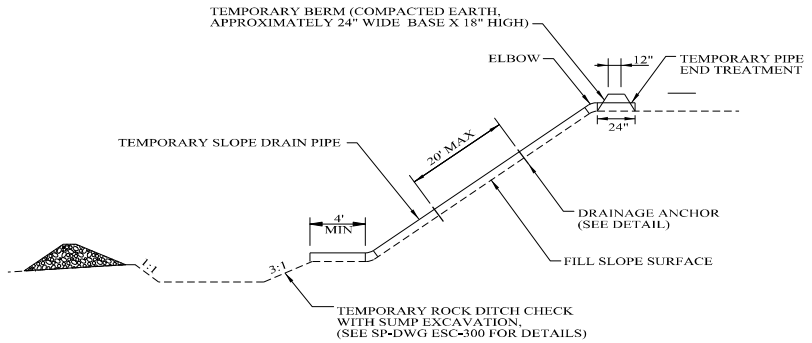


PLAN



RECOMMENDED ANCHOR DETAIL

NOTE:
CONTRACTOR MAY PROPOSE ALTERNATE ANCHORING DETAIL.
ENGINEERS APPROVAL WILL BE BASED ON PERFORMANCE.



SECTION A-A

NOTES:

1. TEMPORARY SLOPE DRAINS (BERMS, DRAINS AND ROCK, IF NECESSARY) SHALL BE USED AS THE EMBANKMENT IS CONSTRUCTED. MAXIMUM SPACING OF THE DRAIN ASSEMBLY SHALL BE 300 FEET, OR AS DESIGNATED BY THE ENGINEER. THE DRAIN ASSEMBLIES SHALL BE USED UNTIL THE SLOPES ARE PROTECTED WITH PERMANENT SOIL EROSION CONTROL MEASURES.
2. TEMPORARY BERMS SHALL ALSO BE CONSTRUCTED AT THE TOP OF ALL ERODIBLE CUT SLOPES DESIGNATED OR PERMITTED BY THE ENGINEER. THE GRADIENT OF THE BERMS SHALL BE THE MINIMUM POSSIBLE THAT CONDITIONS PERMIT.
3. IN SOME CASES IT MAY BE NECESSARY TO EMBED METAL OR PLASTIC PIPE INTO THE FILL SLOPE TO ENSURE PROPER ANCHORAGE.
4. THE CONTRACTOR SHALL SELECT THE SIZE OF SLOPE DRAIN PIPE. THE INSIDE DIAMETER OF THE PIPE SHALL BE SELECTED BASED ON EXPECTED FLOWS AND SHALL BE A MINIMUM OF 12 INCHES OR AS SHOWN ON THE PLANS.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

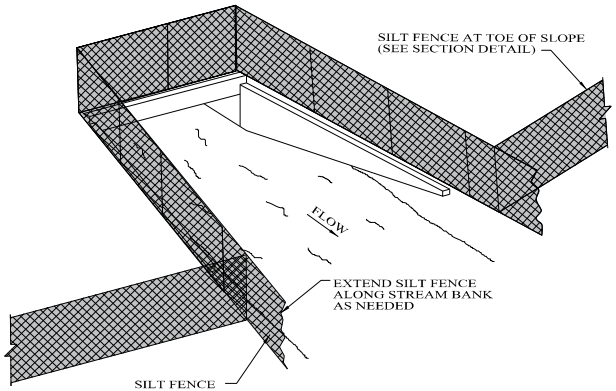
REVISIONS:
1. Adjusted and revised PLAN to PLAN AT LOW POINT, deleted "OR "T" SECTION" and deleted "T SECTION DETAIL" on 8-24-2011 by J.F.T.
2. Replaced all "FLARE END SECTION" text with "TEMPORARY PIPE END SECTION" on 9-24-2012 by J.F.T.
3. Updated Special Drawing No. from ESC-200 (SHEET 2 OF 5) to ESC-200-2 on 10-31-2016 by J.F.T. & J.M.M.
4. Added and inserted "BASE" to the note "APPROXIMATELY 24" WIDE", added 12" and 24" on "TEMPORARY PIPE END TREATMENT" of SECTION" A-A. A pipe was added to "RECOMMENDED ANCHOR DETAIL" on 08-27-2025 by J.F.T.

Bureau Std Engr:	G.L.D.
DRAWN BY:	
DATE DRAWN:	2006
REVISED DATE:	8-27-2025

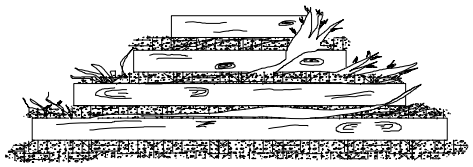
DESIGN BUREAU SPECIAL DRAWING

DETAILS OF TEMPORARY SLOPE DRAIN, BERMS, AND ENERGY DISSIPATOR

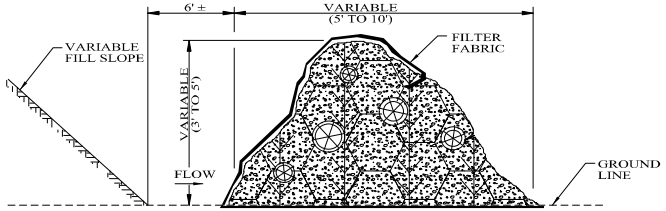
SPECIAL DRAWING NO	INDEX NO
ESC-200-2	66506



SEDIMENT BARRIER AT CROSS DRAIN



REAR ELEVATION



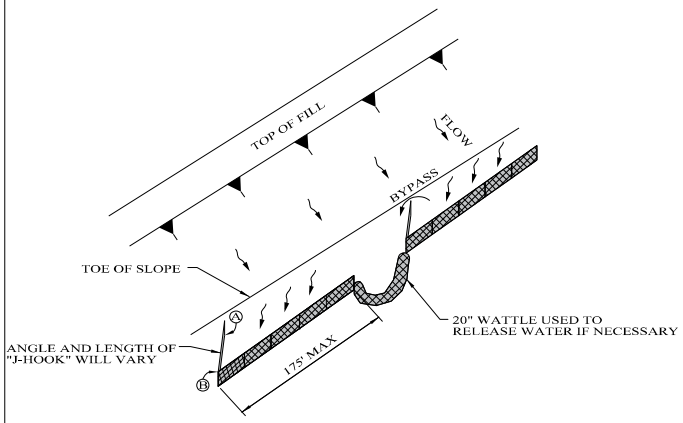
SIDE ELEVATION

TEMPORARY BRUSH BARRIER

NOTES:

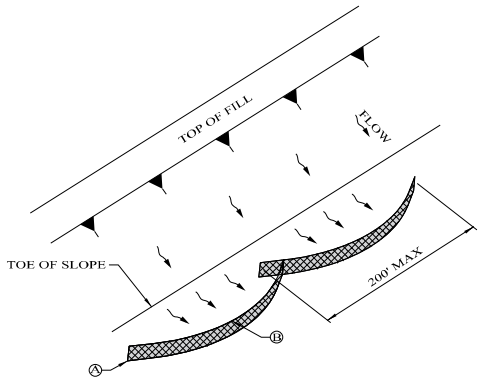
1. BRUSH BARRIER MAY BE USED WHERE NATURAL GROUND IS LEVEL OR SLOPING AWAY FROM PROJECT.
2. PLACE BRUSH, LOG AND TREE LAPS APPROXIMATELY PARALLEL TO TOE OF FILL SLOPE WITH SOME OF THE HEAVIER MATERIALS BEING PLACED ON TOP TO PROPERLY SECURE THE BARRIER AS DETAILED AT LOCATIONS SHOWN ON PLANS OR AS DIRECTED OR PERMITTED BY THE ENGINEER.
3. TO ALLOW WATER TO SEEP THROUGH BRUSH BARRIER, INTERMINGLE THE BRUSH, LOG AND TREE LAPS SO AS NOT TO FORM A SOLID DAM.
4. THE BRUSH BARRIER SHALL BE CHOKED WITH FILTER FABRIC.

NOTE:
ANCHOR AND INSTALL SILT FENCE PER DETAILS SHOWN ON SPECIAL DRAWING No. ESC-200-4.



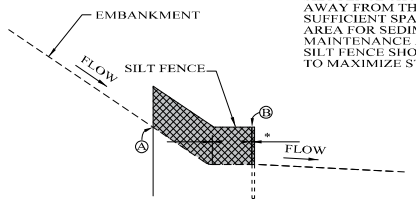
"J-HOOK" SILT FENCE
APPLICATION

NOTE:
THE ELEVATION AT THE BOTTOM OF THE DISTANT END OF THE J-HOOK" Ⓐ SHOULD BE THE SAME AS THE LOWEST POINT ALONG THE TOP OF SILT FENCE Ⓑ.



"SMILE-CONFIGURATION" SILT FENCE
APPLICATION

NOTE:
EL Ⓐ = EL Ⓑ TO MAXIMIZE STORAGE.



* SILT FENCE SHOULD BE LOCATED AT LEAST 6' AWAY FROM THE TOE OF THE SLOPE TO PROVIDE SUFFICIENT SPACE TO ALLOW A BROAD, FLAT AREA FOR SEDIMENT ACCUMULATION AND MAINTENANCE ACTIVITIES. THE ENDS OF THE SILT FENCE SHOULD BE TURNED UP GRADIENT TO MAXIMIZE STORAGE.

SILT FENCE SECTION AT
TOE OF SLOPE

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

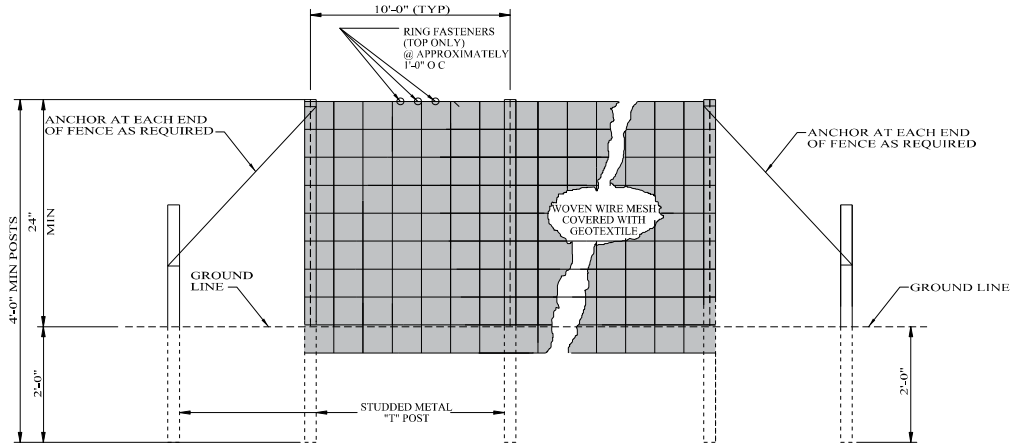
ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Revised "SIDE ELEVATION" to show Geotextile Filter and Underlayment. Edited and repositioned text on 9-24-2012 by J.F.T.
2. Updated Special Drawing No. from ESC-200 (SHEET 3 OF 5) to ESC-200-3 on 10-31-2016 by J.F.T. & J.M.M.
3. Changed "fill" to "slope" in several callouts, removed "Type A" designation for silt fence, and added 6' distance to * note on 8-11-2020 by D.J.W.

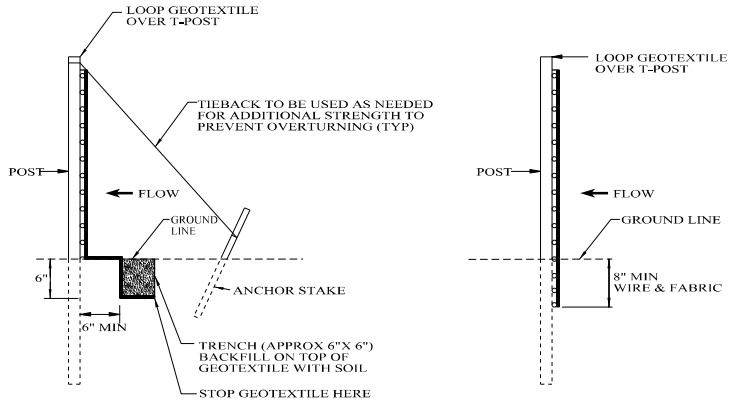
Bureau Std Engr:	D.J.W.
DRAWN BY:	
DATE DRAWN:	2006
REVISED DATE:	8-11-2020

DESIGN BUREAU SPECIAL DRAWING
DETAILS OF SEDIMENT BARRIER APPLICATIONS

SPECIAL DRAWING NO	INDEX NO
ESC-200-3	66507



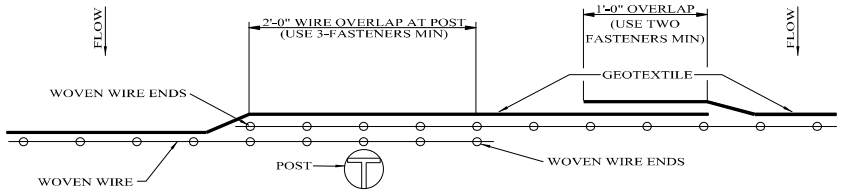
ELEVATION VIEW



METHOD I

METHOD II
MECHANICAL INSTALLATION

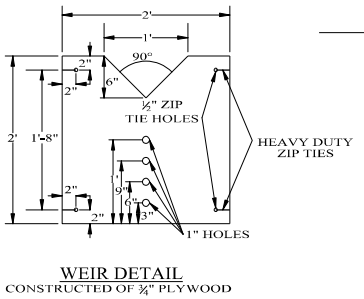
SIDE VIEW



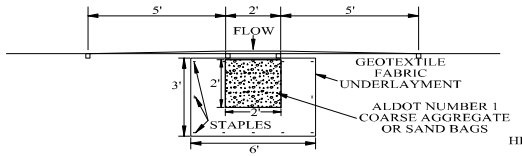
PLAN VIEW

REQUIRED LAPPING

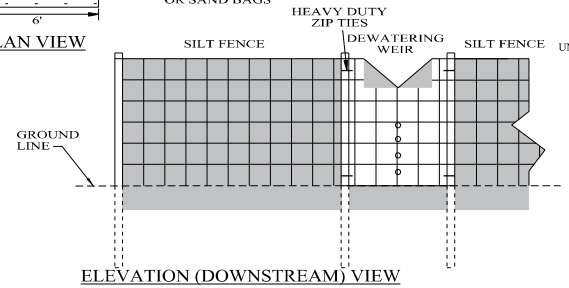
NOTES:
1. METHOD II FENCE INSTALLATION ALSO TO INCLUDE ANCHORS AND TIEBACKS AS REQUIRED.
2. SILT FENCE SHALL BE USED IN AREAS WHERE FLOW IS LOW TO MODERATE OR AS DIRECTED BY THE ENGINEER.
3. SILT FENCES ARE TEMPORARY SEDIMENT CONTROL ITEMS THAT SHALL BE ERECTED DOWN GRADE OF ERODIBLE AREAS SUCH AS NEWLY GRADED FILL SLOPES AND ADJACENT TO STREAMS AND CHANNELS.
4. SILT FENCE SHOULD BE PLACED WELL INSIDE RIGHT-OF-WAY AND ALONG EDGE OF CLEARING LIMITS. THIS WILL ALLOW ROOM FOR ADDITIONAL BEST MANAGEMENT PRACTICES SUCH AS VEGATATED BUFFERS.
5. WHEREVER POSSIBLE SILT FENCES SHALL BE CONSTRUCTED ACROSS A LEVEL AREA IN THE SHAPE OF A SMILE. THIS AIDS IN PONDING OF RUNOFF AND FACILITATE SEDIMENTATION.
6. FOR AREAS OF CONCENTRATED IMPOUNDMENT, T-POST SPACING SHOULD BE REDUCED TO 5 FT WITH THE INCORPORATION OF A DEWATERING WEIR.
7. THE CONTRACTOR MAY ELECT TO USE EITHER INSTALLATION METHOD I OR METHOD II.
8. METHOD II INSTALLATION SHALL BE ACCOMPLISHED USING AN IMPLEMENT THAT IS MANUFACTURED FOR THE APPLICATION AND PROVIDES A CONFIGURATION MEETING THE REQUIREMENTS OF THE DETAIL.
9. SEE ALDOT LIST II-3 FOR APPROVED SILT FENCE GEOTEXTILES.
10. THE DEWATERING WEIR AND ALL ASSOCIATED ITEMS AND LABOR SHALL BE A SUBSIDIARY OBLIGATION OF THE SILT FENCE.



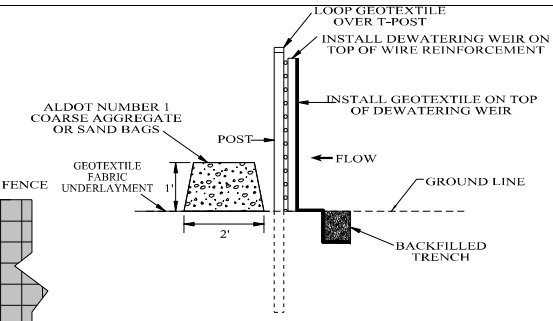
WEIR DETAIL
CONSTRUCTED OF ¼" PLYWOOD



PLAN VIEW



ELEVATION (DOWNSTREAM) VIEW



SIDE VIEW

DEWATERING WEIR

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

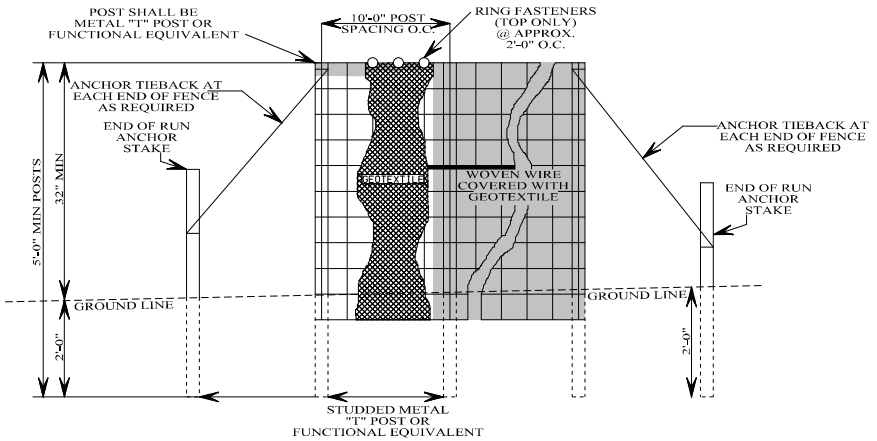
REVISIONS:
1. Revised Fence height and deleted (Type A) from the Silt Fence description on 7-12-2007 by W.W.A.
2. Revised Notes 7, 3, 4, 6 and added 8 on 8-24-2011 by J.F.T.
3. Updated Special Drawing No. from ESC-200 (SHEET 4 OF 5) to ESC-200-4 on 10-31-2016 by J.F.T. AND J.M.M.
4. Revised Elevation View and Method 1 view. Added new Note 6 and renumbered rest accordingly. Added dewatering weir and installation details on 9-2-2020 by D.J.W.
5. Revised Side View of Method 1 in upper right measurement from 6" to 6" MIN on 06-22-2022 by J.F.T.

Bureau Std Engr:	G.L.D.
DRAWN BY:	
DATE DRAWN:	7006
REVISED DATE:	6-22-2022

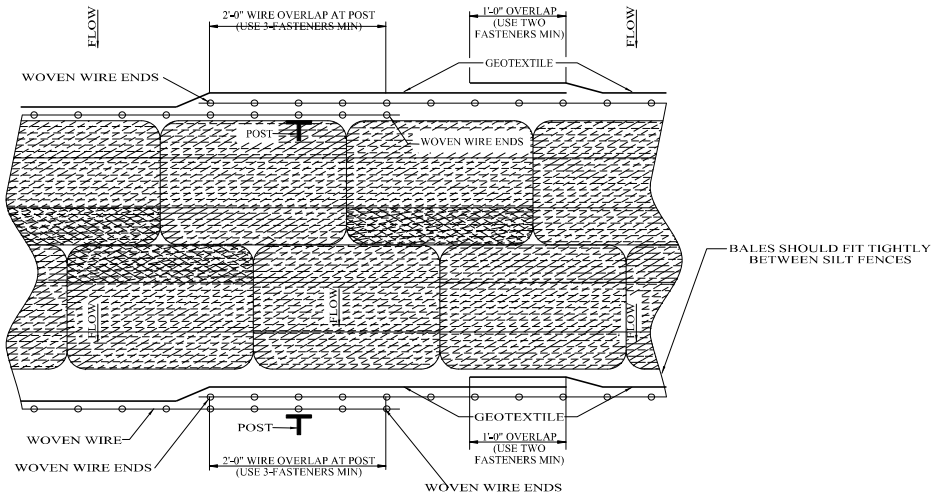
DESIGN BUREAU SPECIAL DRAWING

DETAILS OF SILT FENCE INSTALLATION

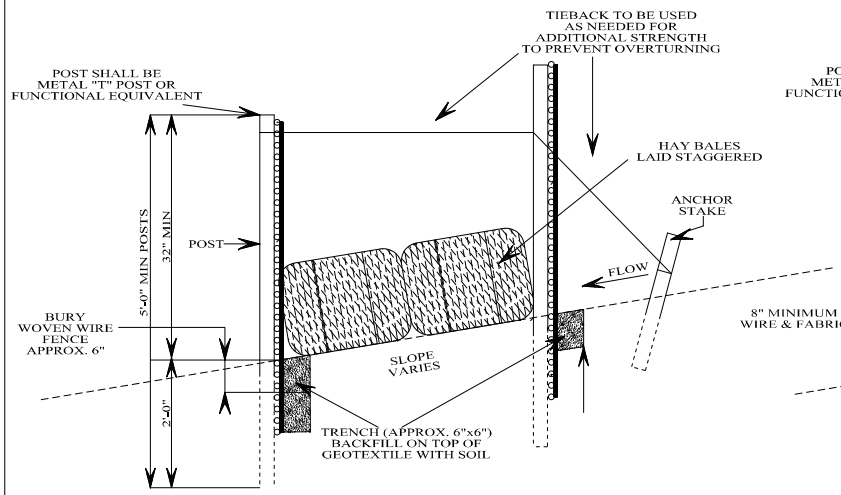
SPECIAL DRAWING NO	INDEX NO
ESC-200-4	66508



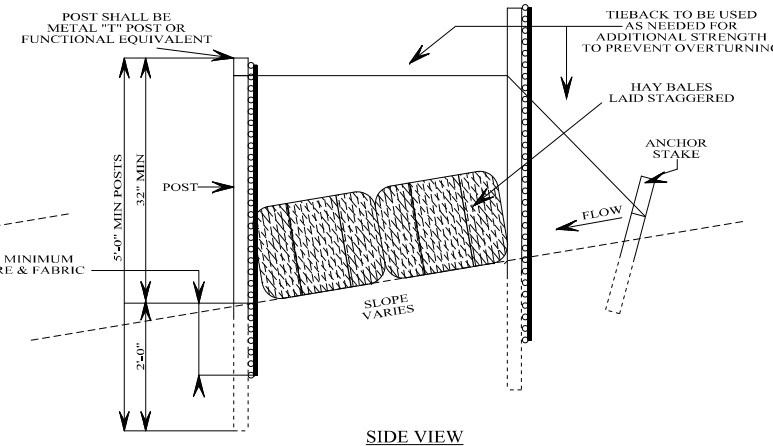
ELEVATION VIEW



PLAN VIEW
REQUIRED LAPPING



SIDE VIEW
SECTION A-A
METHOD I



SIDE VIEW
SECTION A-A
METHOD II
MECHANICAL INSTALLATION

NOTES:

1. METHOD II FENCE INSTALLATION ALSO TO INCLUDE ANCHORS AND TIEBACKS AS REQUIRED.
2. SEDIMENT RETENTION BARRIER SHALL BE USED IN AREAS WHERE FLOW IS LOW TO MODERATE OR AS DIRECTED BY THE ENGINEER.
3. SEDIMENT RETENTION BARRIERS ARE TEMPORARY SEDIMENT CONTROL ITEMS THAT SHALL BE ERECTED DOWN GRADE OF ERODIBLE AREAS SUCH AS NEWLY GRADED FILL SLOPES AND ADJACENT TO STREAMS AND CHANNELS.
4. SEDIMENT RETENTION BARRIERS SHOULD BE PLACED WELL INSIDE RIGHT-OF-WAY AND ALONG EDGE OF CLEARING LIMITS IF POSSIBLE. THIS WILL ALLOW ROOM FOR ADDITIONAL BEST MANAGEMENT PRACTICES SUCH AS VEGETATED BUFFERS.
5. WHEREVER POSSIBLE SEDIMENT RETENTION BARRIERS SHALL BE CONSTRUCTED ALONG A CONTOUR WITH THE ENDS TURNED. THIS AIDS IN PONDING OF RUNOFF AND FACILITATES SEDIMENTATION.
6. THE CONTRACTOR MAY ELECT TO USE EITHER INSTALLATION METHOD I OR METHOD II.
7. METHOD II INSTALLATION SHALL BE ACCOMPLISHED USING AN IMPLEMENT THAT IS MANUFACTURED FOR THE APPLICATION AND PROVIDES A CONFIGURATION MEETING THE REQUIREMENTS OF THE DETAIL.
8. SEE ALDOT LIST II-3 FOR APPROVED SILT FENCE GEOTEXTILES.

NOT TO SCALE

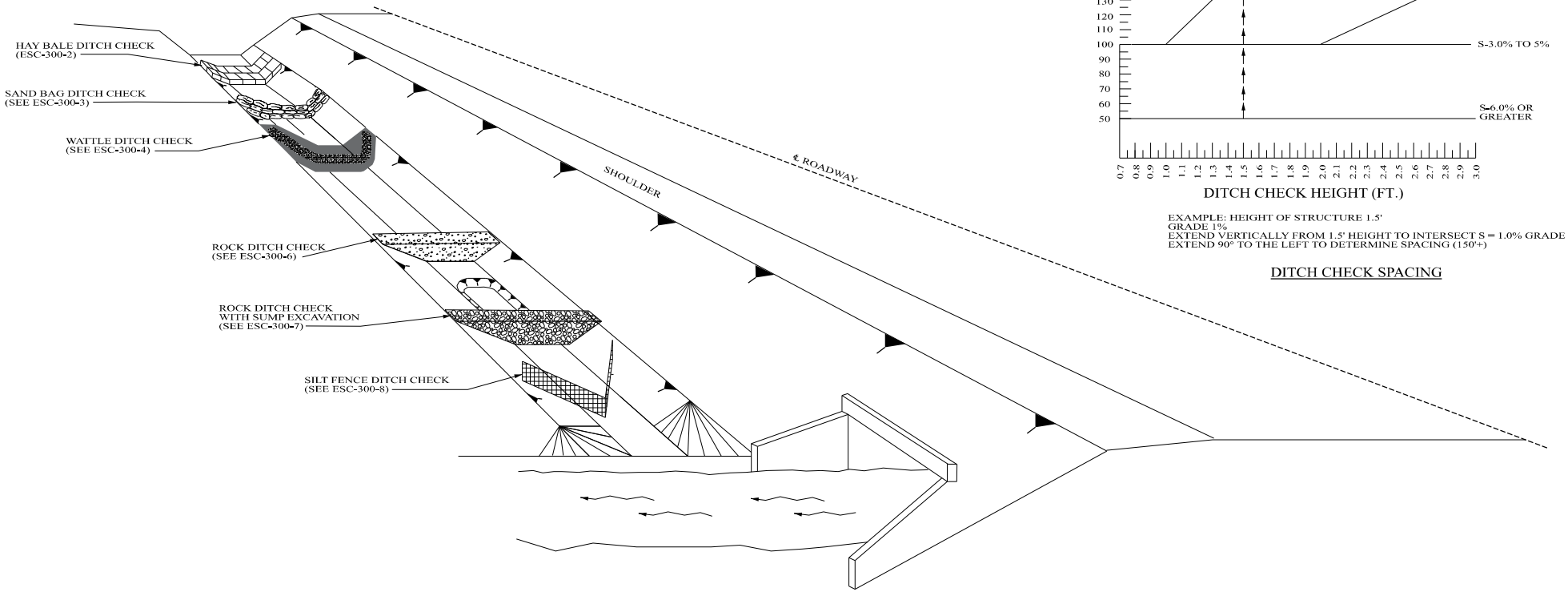
--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Updated Special Drawing No. ESC-200 (SHEET 5 OF 5) on ESC-200-5 on 10-31-2016 by J.F.T. & J.M.M.

Bureau Std Engr:	D.J.W.
DRAWN BY:	W.D.H.
DATE DRAWN:	06-25-2015
REVISED DATE:	10-31-2016

DESIGN BUREAU SPECIAL DRAWING	SPECIAL DRAWING NO	INDEX NO
DETAILS OF SEDIMENT RETENTION BARRIER	ESC-200-5	66509



EXAMPLE: HEIGHT OF STRUCTURE 1.5'
GRADE 1%
EXTEND VERTICALLY FROM 1.5' HEIGHT TO INTERSECT S = 1.0% GRADE
EXTEND 90° TO THE LEFT TO DETERMINE SPACING (150'+)

DITCH CHECK SPACING

NOTES:

1. THE DITCH CHECK PERSPECTIVE ILLUSTRATES A TOOL BOX OF TEMPORARY PRACTICES THAT MAY BE DIRECTED OR PERMITTED BY THE ENGINEER. DITCH CHECKS ARE INSTALLED TO CONTROL RUNOFF VELOCITY AND THUS REDUCE EROSION AND PROVIDE FOR TRAPPING OF SEDIMENTS.
2. SELECTION OF THE APPROPRIATE DITCH CHECK SHOULD BE A FUNCTION OF CONSTRUCTION PHASE, DRAINAGE AREA, DITCH GRADIENT, SOIL TYPE, ECONOMY AND SAFETY.
3. DITCH CHECKS CAN BE REMOVED FOR MAINTENANCE AND/OR REPLACEMENT BUT MUST REMAIN IN PLACE UNTIL UPSLOPE AREAS HAVE BEEN PERMANENTLY STABILIZED. MAINTENANCE INCLUDES REMOVAL OF SEDIMENT BEGINNING WHEN SEDIMENT ACCUMULATION REACHES 1/3 THE CAPACITY OR HEIGHT OF THE STRUCTURE AND NEVER ALLOWING FOR SEDIMENT TO ACCUMULATE MORE THAN ½ THE VOLUME OR HEIGHT OF THE DITCH CHECK STRUCTURE.
4. HAY BALES ARE USED TO INTERCEPT LOW VOLUME FLOWS IN LOW TO MODERATE GRADIENT DITCHES.
5. SAND BAG DITCH CHECKS ARE USED FOR VELOCITY REDUCTION AND MINIMAL SEDIMENT TRAPPING IN CONCRETE PAVED DITCHES OR IN DITCHES THAT HAVE ROCKY BOTTOMS.
6. WATTLE DITCH CHECKS ARE APPROPRIATE FOR VELOCITY REDUCTION AND CONTROL OF SEDIMENT TRANSPORT UNDER LOW TO MEDIUM FLOW CONDITIONS NOT EXCEEDING 1.0 CU FT/SEC.
7. THE TYPE AND SIZE OF ROCK USED TO CONSTRUCT ROCK DITCH CHECKS WILL BE SELECTED BY THE DESIGNER AND SHOWN ON THE PLANS. THE SIZE OF ROCK CHOSEN SHOULD BE PROPORTIONAL TO EXPECTED FLOWS AND VELOCITIES. SEDIMENT TRAPPING EFFECTIVENESS MAY BE ADJUSTED BY CHOKING.
8. ROCK DITCH CHECK WITH SUMP EXCAVATION CAN BE PLACED IN DITCHES TO FACILITATE ON-SITE SEDIMENT TRAPPING. DITCH CHECK WITH SUMP EXCAVATION IS USED WHEN DITCHES IS USED RECEIVE DRAINAGE FROM CUT OR FILL SLOPES OR OTHER CRITICAL AREAS WHERE SOIL EROSION IS EXPECTED. DRAINAGE AREA FOR A TEMPORARY SEDIMENT TRAP SHALL NOT EXCEED 3 ACRES. THEY CAN BE USED IN SERIES TO INCREASE ON-SITE SEDIMENT TRAPPING EFFICIENCY.
9. DITCH CHECKS SHALL NOT BE PLACED IN LIVE STREAMS.
10. CONFIGURATION AND SPACING MAY BE ADJUSTED IF APPROVED BY THE ENGINEER TO ACCOMODATE TRAVELWAY SAFETY, WATER FLOW, OR SOIL AND INSTALLATION CHALLENGES.
11. SILT FENCE DITCH CHECKS ARE USED WHERE IT HAS BEEN DETERMINED THAT HAY BALE CHECKS ARE INADEQUATE, OR SILT FENCE DITCH CHECKS CAN BE JUSTIFIED BASED ON COST. SILT FENCE DITCH CHECKS ARE USED TO INTERCEPT LOW VOLUME FLOWS IN LOW TO MODERATE GRADIENT DITCHES.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

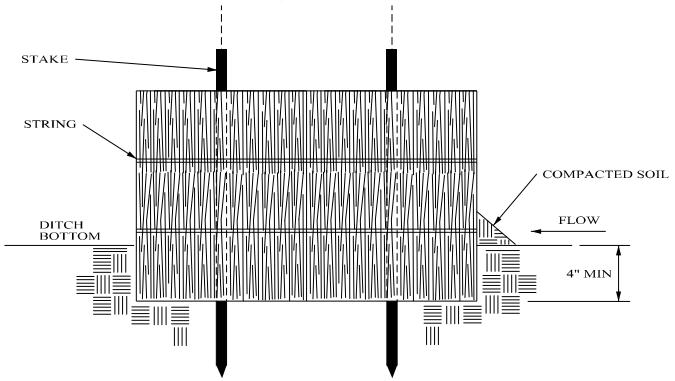
ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Previous Note No. 5 deleted and renumbered. In Note No. 12 "DITCH CHECK SPACING" chart was and a second row of HAYBALES was added on 8-24-2011 by J.F.T.
2. Adjusted Note No. 6 on 7-24-2012 by J.F.T.
3. Adjusted and Rearranged Ditch Check sheeting order on 10-26-2014 by J.F.T.
4. Updated ESC-300-1 (SHEET 1 OF 8) to ESC-300-1 on 10-11-2016 by J.F.T. & J.M.M.
5. Removed "SILT DIKE DITCH CHECK (ESC-300-5) from drawing (ESC-300-) and Note 7 concerning the "SILT DIKE DITCH CHECK" on 09-11-2023 by J.F.T.
6. Added geotextile fabric underneath the wattle ditch check on 7-24-2024 by J.F.T.

Bureau Std Engr:	G.L.D.
DRAWN BY:	
DATE DRAWN:	2006
REVISED DATE:	7-24-2024

DESIGN BUREAU SPECIAL DRAWING
DITCH CHECK STRUCTURES, TYPICAL APPLICATIONS AND DETAILS

SPECIAL DRAWING NO	INDEX NO
ESC-300-1	66512



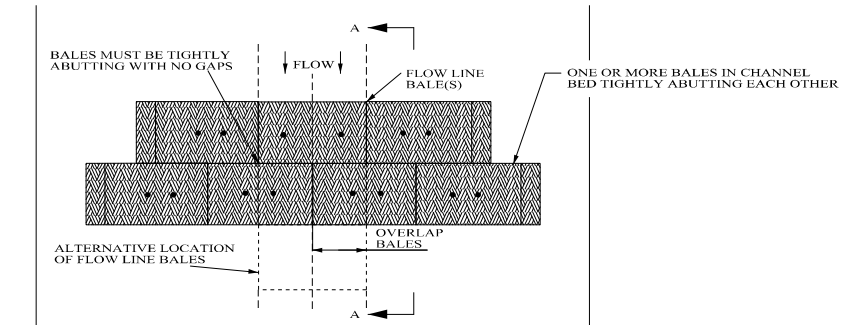
SECTION A-A

NOTES:

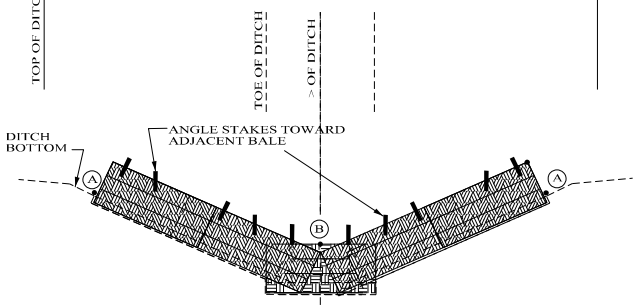
1. MINIMUM RECOMMENDED CHECK SPACING IS 100 FEET UNLESS SHOWN OTHERWISE ON THE PLANS OR APPROVED BY THE ENGINEER. SEE SPACING GUIDANCE ON ESC-300-1.
2. ANCHORING STAKES SHALL BE SIZED, SPACED, AND BE OF A MATERIAL THAT EFFECTIVELY SECURES THE CHECK. A MINIMUM OF TWO STAKES PER BALE IS REQUIRED. ALL NON-DEGRADABLE MATERIALS SHALL BE REMOVED WHEN NO LONGER NEEDED.
3. BALES SHALL BE EMBEDDED IN THE SOIL A MIN OF 4 INCHES.
4. BALES SHALL BE PLACED IN A ROW WITH ENDS TIGHTLY ABUTTING THE ADJACENT BALES. THE BALES SHALL BE PLACED WITH BINDINGS PARALLEL TO THE GROUND.
5. SOIL IS COMPACTED ALONG THE BASE OF THE UPSTREAM FACE TO PREVENT PIPING.
6. MULTIPLE ADJACENT ROWS OF BALES ARE REQUIRED AS SHOWN.

HAY BALE DITCH CHECK SELECTION GUIDELINES

HAY BALES ARE USED TO INTERCEPT LOW VOLUME FLOWS IN LOW TO MODERATE GRADIENT DITCHES.



PLAN VIEW
TRAPEZOIDAL DITCH



PROFILE VIEW
TRAPEZOIDAL DITCH

END POINTS (A) MUST BE HIGHER THAN FLOW LINE POINT (B)

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

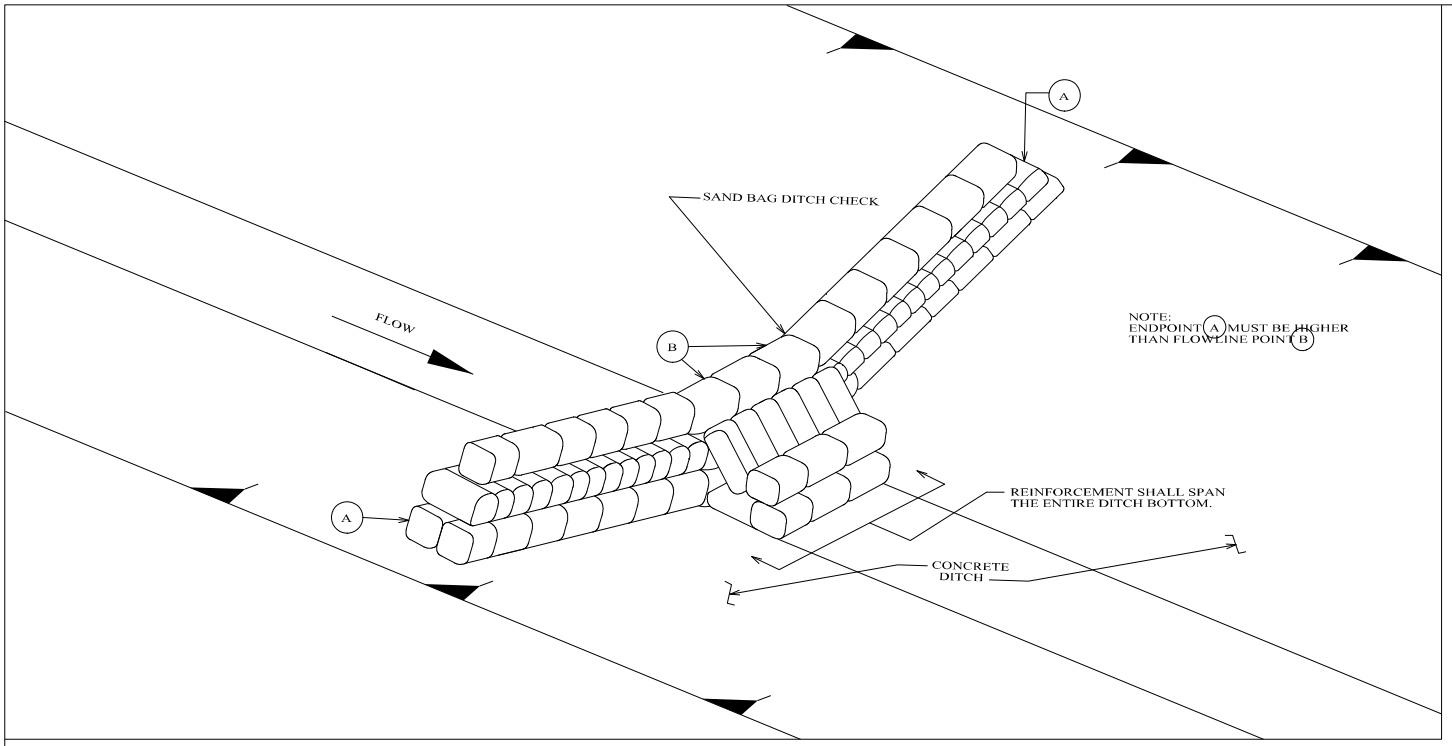
REVISIONS:
1. Revised "PROFILE VIEW" on 8-24-2011 by J.F.T.
2. Eliminated void on Hay Bale Plan & Trapezoid Views on 9-2-2011 by J.F.T.
3. Repositioned and revised text on 9-24-2012 by J.F.T.
4. Revised Notes 1 & 3 and Profile View Trapezoidal Ditch and deleted Plan View, Notes and Silt Fence Ditch Check Selection Guidelines. Revised Drawing Description Block on 7-29-2014 by J.F.T.
5. Updated Special Drawing No. from ESC-300 (SHEET 2 OF 8) to ESC-300-2 on 10-31-2016 by J.F.T. & J.M.M.

Bureau Std Engr:	D.J.W.
DRAWN BY:	
DATE DRAWN:	2006
REVISED DATE:	10-31-2016

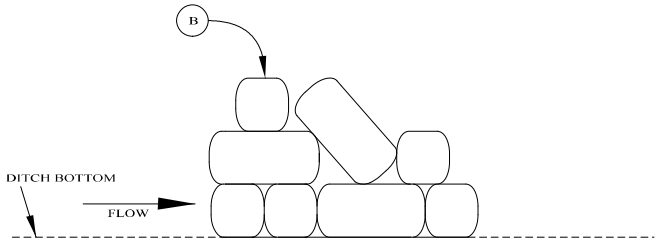
DESIGN BUREAU SPECIAL DRAWING

DETAILS OF HAY BALE DITCH CHECKS

SPECIAL DRAWING NO	INDEX NO
ESC-300-2	66513



DETAIL (DITCH CHECK)



SIDE VIEW
(IN DITCH BOTTOM)

NOTES:

1. MINIMUM RECOMMENDED PLACEMENT INTERVAL BETWEEN SAND BAG DITCH CHECK IS 100' UNLESS SHOWN OTHERWISE ON THE PLANS OR APPROVED BY THE ENGINEER. SEE SPACING GUIDANCE ON SHT ESC-300-1.
2. PREVENTING SEDIMENT FROM ENTERING A PAVED DITCH IS PREFERABLE TO CAPTURING SEDIMENT WITHIN PAVED DITCH.

SAND BAG DITCH CHECK SELECTION GUIDELINES

SAND BAG DITCH CHECKS ARE USED FOR VELOCITY REDUCTION AND MINIMAL SEDIMENT TRAPPING IN CONCRETE PAVED DITCHES OR IN DITCHES THAT HAVE ROCKY BOTTOMS.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

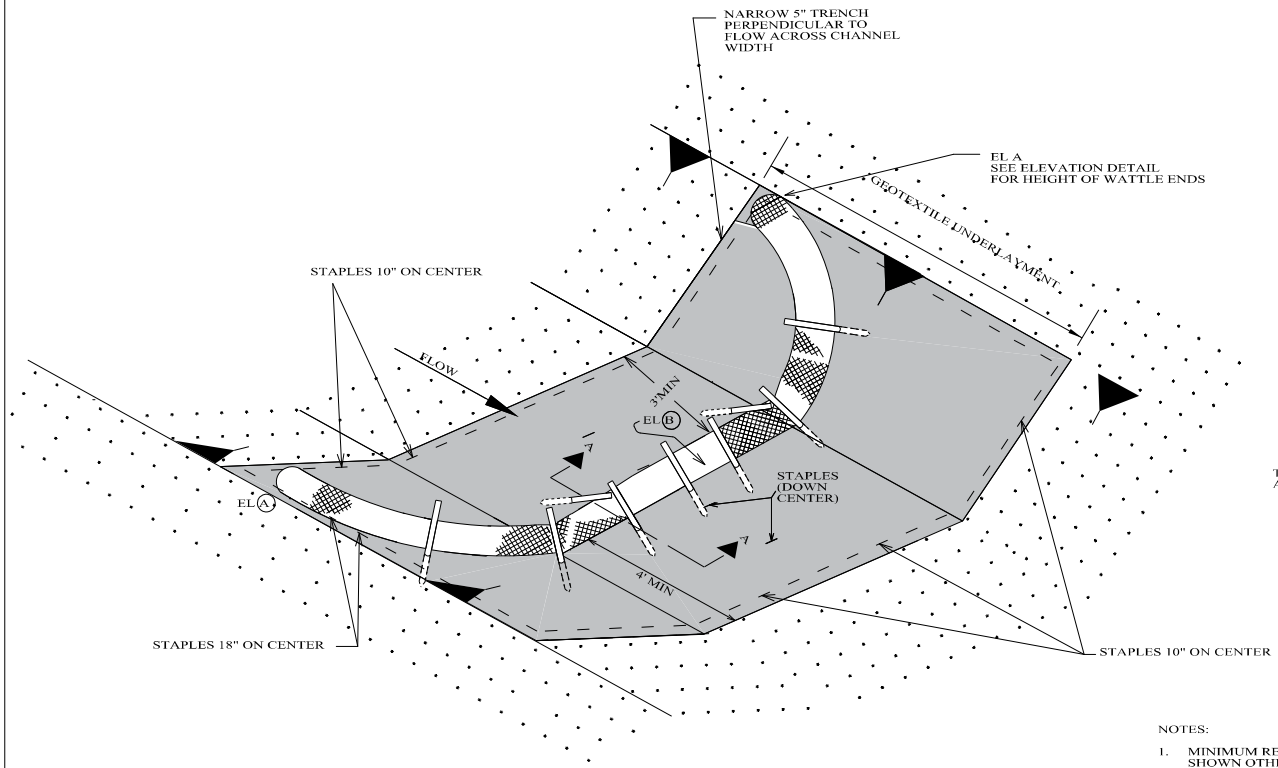
REVISIONS:
1. Added in CADD on 7-02-2014 by J.F.T.
2. Revised "DETAIL (DITCH CHECK)" and "SIDE VIEW (IN DITCH BOTTOM. Revised Description Box on 10-20-2014 by J.F.T.
3. Updated Special Drawing No. from ESC-300 |SHEET 3 OF 8) to ESC-300-3 on 10-31-1016 by J.F.T. and J.M.M.

Bureau Std Engr:	D.J.W.
DRAWN BY:	J.F.T.
DATE DRAWN:	7-2-2014
REVISED DATE:	10-31-2016

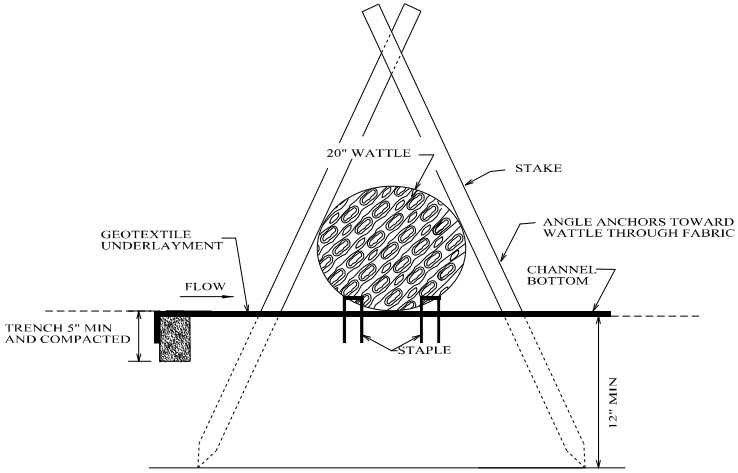
DESIGN BUREAU SPECIAL DRAWING

DETAILS OF SANDBAG
DITCH CHECK

SPECIAL DRAWING NO	INDEX NO
ESC-300-3	66514



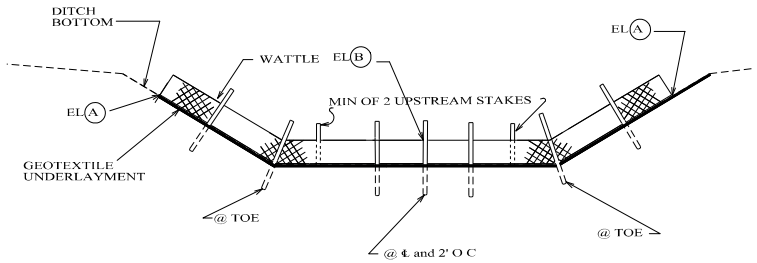
DETAIL (DITCH CHECK)



SECTION A-A

NOTES:

1. MINIMUM RECOMMENDED PLACEMENT INTERVAL BETWEEN WATTLE DITCH CHECK IS 100 FEET UNLESS SHOWN OTHERWISE ON THE PLANS OR APPROVED BY THE ENGINEER. SEE SPACING GUIDANCE ON ESC-300-1.
2. ANCHORING STAKES SHALL BE SIZED, SPACED, DRIVEN, AND BE OF A MATERIAL THAT EFFECTIVELY SECURES THE CHECK. STAKE SPACING SHALL BE A MAXIMUM OF TWO FEET.
3. WATTLES SHOULD NOT BE USED IN HARD BOTTOM CHANNELS.
4. STAPLES SPACED 18 INCHES APART, ALONG THE CHANNEL EDGES AND DOWN THE CENTER OF THE CHANNEL.STAPLES SPACED 10 INCHES APART, ACROSS THE UPSTREAM AND DOWNSTREAM EDGES.
5. STAPLES SHALL BE PLACED THROUGH THE BOTTOM NETTING OF THE WATTLE ON THE UPSTREAM AND DOWNSTREAM SIDES TO CREATE A SOLID INTERFACE BETWEEN THE WATTLE AND THE GEOTEXTILE UNDERLAYMENT STAPLES SHALL BE PLACED 6" ON CENTER.



ELEVATION DETAIL

NOTE:
END POINTS (A) MUST BE HIGHER
THAN FLOWLINE POINT (B)

WATTLE DITCH CHECK SELECTION GUIDELINES

WATTLE DITCH CHECKS ARE APPROPRIATE FOR VELOCITY REDUCTION AND CONTROL OF SEDIMENT TRANSPORT UNDER LOW TO MEDIUM FLOW CONDITIONS NOT EXCEEDING 1.0 CU FT/SEC.

NOT TO SCALE

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Added in "SECTION A-A" REQUIRED TRENCHING and deleted Note 5. Deleted "FLOCCULANT ZONE (SEE NOTE 5) on 8-24-2011 by J.F.T.
2. Revised and updated " DETAIL (DITCH CHECK) and "ELEVATION DETAIL". Revised text of "WATTLE DITCH CHECH SELECTION GUIDELINES" and adjusted and revised "SECTION A-A" on 9-24-2012 by J.F.T.
3. Revised Notes 1 and 4 on 10-20-2014 by J.F.T.
4. Updated Special Drawing No. from ESC-300 (SHEET 4 OF 8) to ESC-300-4 on 10-31-2016 by J.F.T. & J.M.M.
5. Added 4' MIN dimension from wattle to downstream edge of underlayment on 7-13-2021 by D.J.W.
6. Modified and Added Note 5 concerning "Staples shall be placed through the bottom netting... on 8-03-2022 by J.F.T.

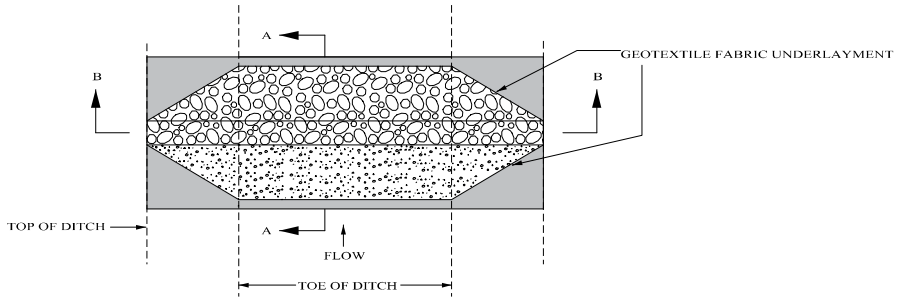
Bureau Std Engr:	G.L.D.
DRAWN BY:	
DATE DRAWN:	7006
REVISED DATE:	8-03-2022

DESIGN BUREAU SPECIAL DRAWING

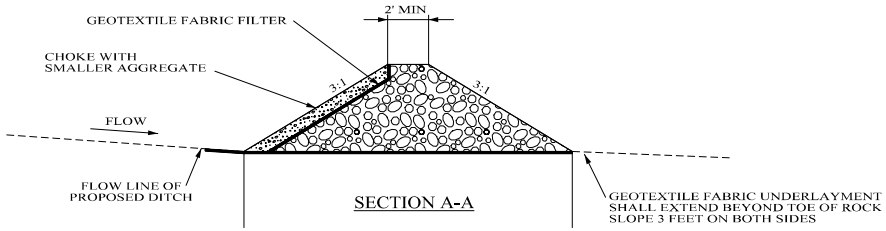
DETAILS OF EROSION CONTROL
WATTLE DITCH CHECKS

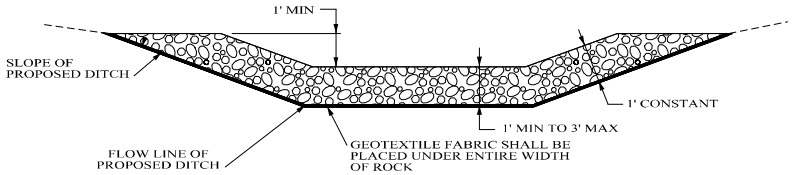
--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

SPECIAL DRAWING NO	INDEX NO
ESC-300-4	66515



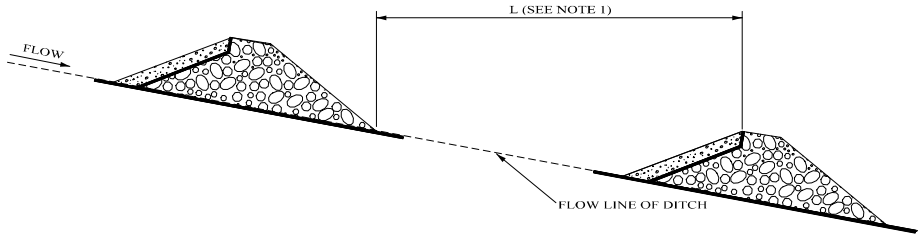
PLAN VIEW
DETAIL FOR TRAPEZOIDAL DITCH





SECTION B-B

TEMPORARY ROCK DITCH CHECKS IN ROADSIDE DITCHES



DETAIL FOR SPACING BETWEEN DITCH CHECKS

NOTES:

1. MINIMUM SPACING FOR ROCK DITCH CHECKS SHALL BE 50 FEET OR AS DIRECTED BY THE ENGINEER. SEE SPACING GUIDANCE ON SP-DWG ESC-300-1.
2. ROCK DITCH CHECKS SHALL BE CHOKED WITH FILTER FABRIC.
3. SEE LIST II-3 FOR APPROVED GEOTEXTILES.

ROCK DITCH CHECK SELECTION GUIDELINES

THE TYPE AND SIZE OF ROCK USED TO CONSTRUCT THE CHECK WILL BE SELECTED BY THE DESIGNER AND SHOWN ON THE PLANS. THE SIZE OF ROCK CHOSEN WILL BE PROPORTIONAL TO EXPECTED FLOWS AND VELOCITIES.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

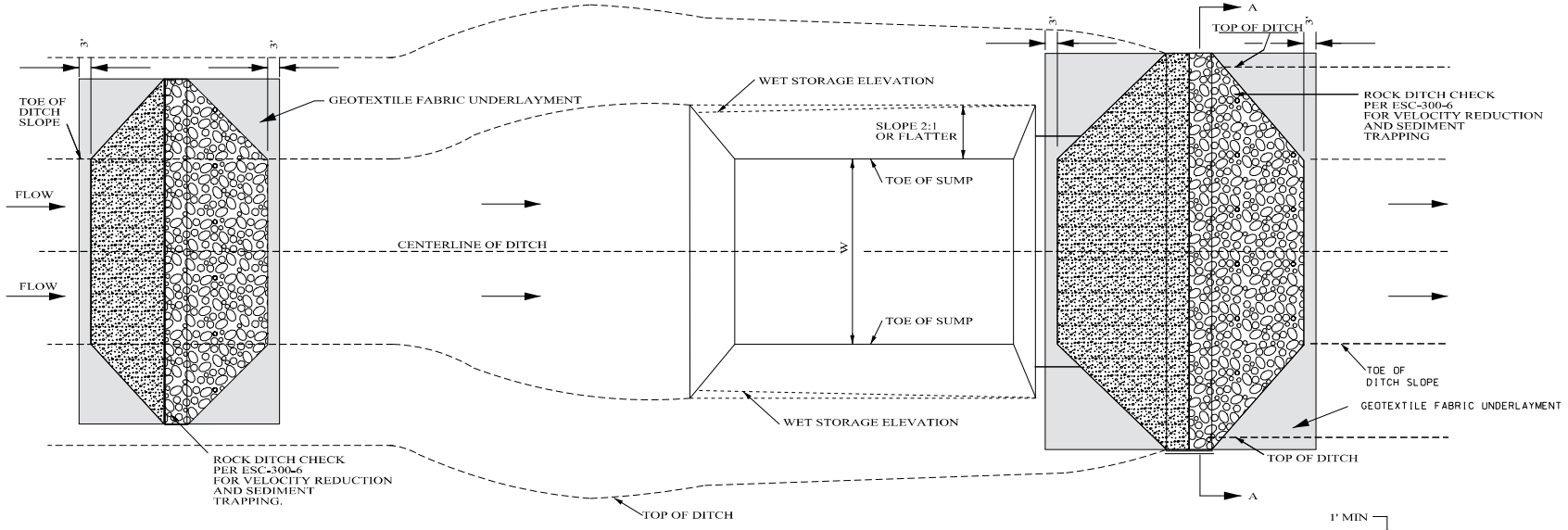
ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Added smaller aggregate on slopes on "PLAN VIEW" and "DETAIL FOR SPACING BETWEEN DITCH CHECKS". Added Note 3 on 8-26-2011 by J.F.T.
2. Revised "SECTION A-A" and "DETAIL FOR SPACING BETWEEN DITCH CHECKS" on 9-24-2012 by J.F.T.
3. Added Geotextile Underlayment on "PLAN VIEW", "SECTION A-A extended Note, "DETAIL FOR SPACING BETWEEN DITCH CHECK" Geotextile Fabric extension both sides and revised Description Box on 7-30-2014 by J.F.T.
4. Updated Special Drawing No. from ESC-300 (SHEET 6 OF 8) to ESC-300-6 on 10-31-2016 by J.F.T. & J.M.M.

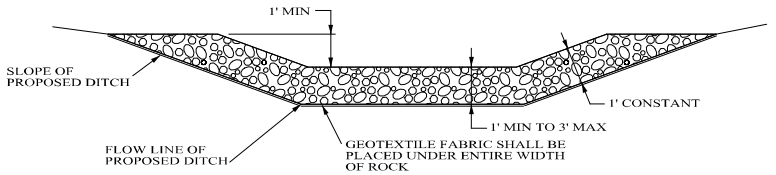
Bureau Std Engr:	D.J.W.
DRAWN BY:	
DATE DRAWN:	2006
REVISED DATE:	10-31-2016

DESIGN BUREAU SPECIAL DRAWING
DETAILS OF
ROCK DITCH CHECKS

SPECIAL DRAWING NO	INDEX NO
ESC-300-6	66517



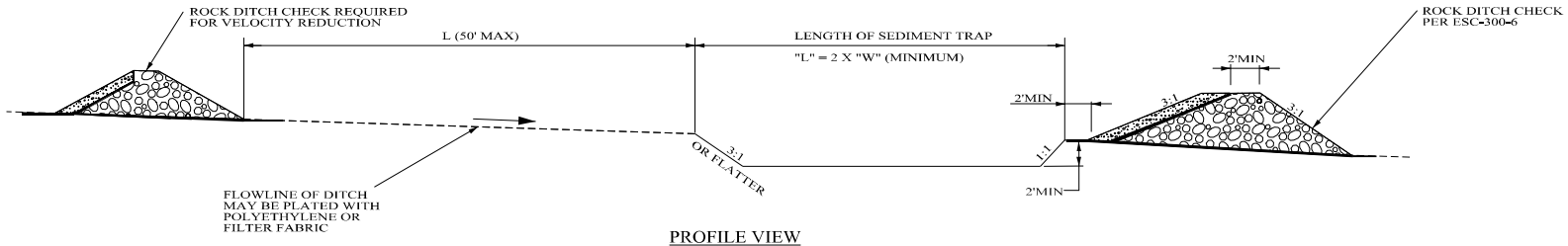
PLAN VIEW



SECTION A-A

ROCK DITCH CHECK WITH SUMP EXCAVATION SELECTION GUIDELINES

THE TYPE AND SIZE OF ROCK USED TO CONSTRUCT THE CHECK WILL BE SELECTED BY THE DESIGNER AND SHOWN ON THE PLANS. THE SIZE OF ROCK CHOSEN WILL BE PROPORTIONAL TO EXPECTED FLOWS AND VELOCITIES.



PROFILE VIEW
DITCH CENTERLINE

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

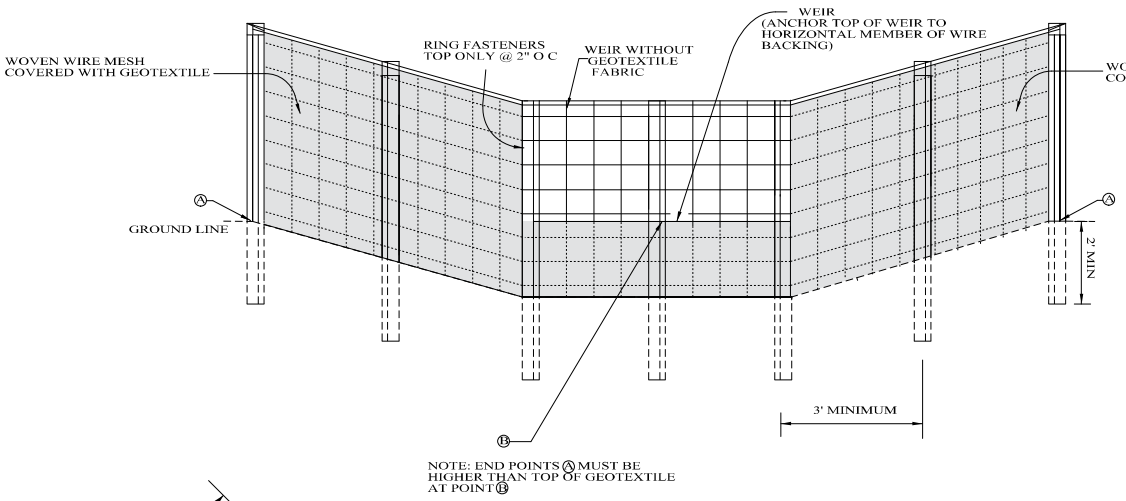
REVISIONS:
1. Removed Dry & Storage Elevation graphic from the Profile View on 7-12-2007 by W.W.A.
2. Revised "PLAN VIEW" and "PROFILE VIEW" to show small aggregate choker. Deleted portion of text in "ROCK DITCH CHECH WITH SUMP EXCAVATION SELECTION GUIDELINES" and edited text also removed DITCH CHECK descriptors on 10-11-2012 by J.F.T.
3. Revised "PLAN VIEW" and "PROFILE VIEW" to show Geotextile Fabric in "PLAN VIEW" and extension of fabric (Geotextile) on both sides in "PROFILE VIEW". Revised and updated "Description Box" on 8-01-2014 by J.F.T.
4. Updated Special Drawing No. from ESC-300 (SHEET 7 OF 8) to ESC-300-7 on 10-31-2016 by J.F.T. & J.M.M.

Bureau Std Engr:	D.J.W.
DRAWN BY:	
DATE DRAWN:	2006
REVISED DATE:	10-31-2016

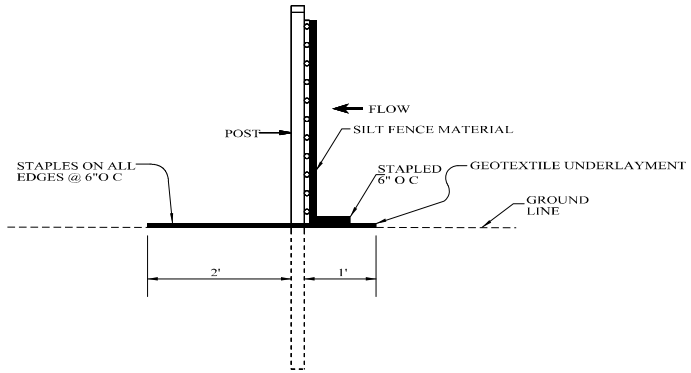
DESIGN BUREAU SPECIAL DRAWING

DETAILS OF
ROCK DITCH CHECKS
WITH SUMP EXCAVATION

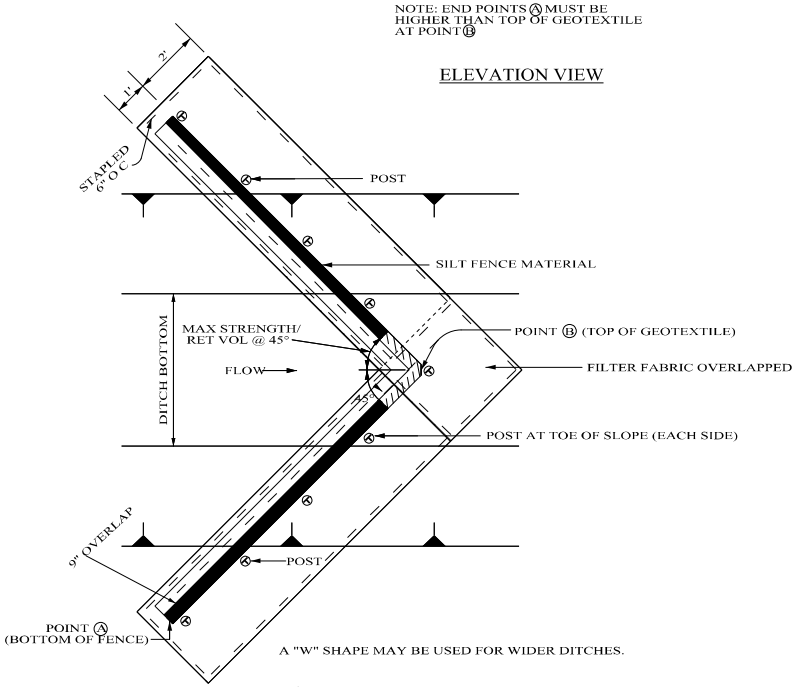
SPECIAL DRAWING NO	INDEX NO
ESC-300-7	66518



ELEVATION VIEW



SIDE VIEW



PLAN VIEW

NOTES:

1. SILT FENCE SHALL BE USED IN AREAS WHERE FLOW IS MODERATE TO HIGH OR AS DIRECTED BY THE ENGINEER.
2. SILT FENCES ARE TEMPORARY EROSION CONTROL ITEMS THAT SHALL BE ERECTED DOWN GRADE OF ERODIBLE AREAS SUCH AS NEWLY GRADED FILL SLOPES AND ADJACENT TO STREAMS AND CHANNELS.
3. IF THE TOP OF THE GEOTEXTILE AT POINT Ⓑ IS HIGHER THAN THE BOTTOM OF THE FENCE AT POINT Ⓐ THEN NO WEIR IS REQUIRED.
4. SEE ALDOT LIST II-3 FOR APPROVED SILT FENCE GEOTEXTILES.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Revised "ELEVATION VIEW", SIDE VIEW" and "PLAN VIEW". Revised Description Box. Revised and Rearranged Notes 3 and 4. Deleted Notes 5 and 6 on 10-30-2014 by J.F.T.
2. Updated Special Drawing No. ESC-300 (SHEET 8 OF 8) to ESC-300-8 on 10-31-2016 by J.F.T. & J.M.M.

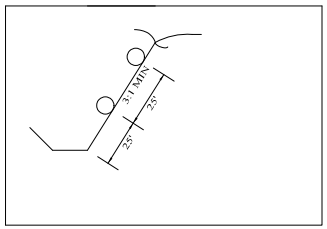
Bureau Std Engr: D.J.W.
DRAWN BY:
DATE DRAWN: 2006
REVISED DATE: 10-31-2016

DESIGN BUREAU SPECIAL DRAWING

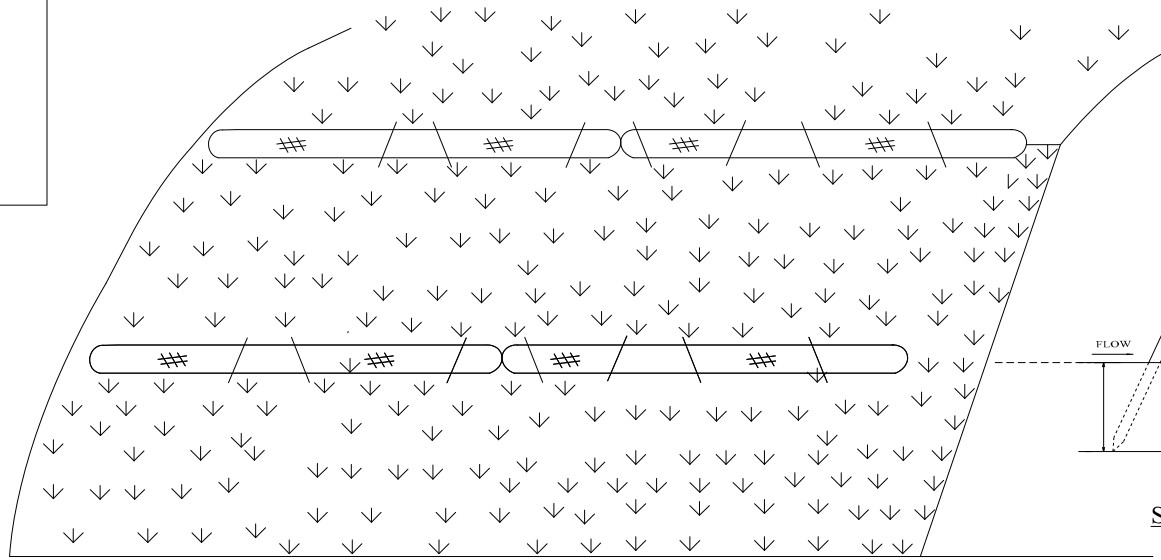
DETAILS OF SILT FENCE DITCH CHECKS

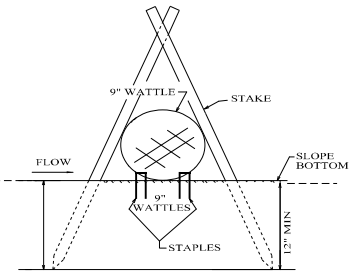
SPECIAL DRAWING NO	INDEX NO
ESC-300-8	66519

WATTLE SLOPE INTERRUPTERS INSTALLATION DETAIL



CROSS SECTION





SECTION A-A

NOTES:

1. FOR SLOPES 3:1 OR STEEPER WITH LENGTHS GREATER THAN 50 FEET ALONG THE VERTICAL FACE OF THE SLOPE, 9-INCH DIAMETER WATTLE SLOPE INTERRUPTERS SHALL BE INSTALLED PERPENDICULAR TO THE SLOPE AT MAXIMUM DISTANCE OF 25 FEET APART ALONG THE VERTICAL FACE OF THE SLOPE. SLOPE INTERRUPTERS SHALL ONLY BE INSTALLED IN CONJUNCTION WITH SEEDING AND MULCHINGWITH NO GEOTEXTILE UNDERLAYMENT.
2. ANCHORING STAKES SHALL BE SIZED, SPACED, DRIVEN, AND BE OF A MATERIAL THAT EFFECTIVELY SECURES THE SLOPE INTERRUPTERS. STAKE SPACING SHALL BE A MAXIMUM OF TWO FEET.
3. STAPLES SHALL BE PLACED THROUGH THE BOTTOM NETTING OF THE WATTLE ON THE UPPER AND LOWER SIDES TO CREATE A SOLID INTERFACE BETWEEN THE WATTLE AND THE GROUND. STAPLES SHOULD BE PLACED 6 INCHES ON CENTER.
4. 9 INCH WATTLE INTERRUPTERS SHALL BE INSTALLED AS PER SECTION A-A WITH NO GEOTEXTILE AND TRENCH. SLOPE INTERRUPTERS SHALL BE INSTALLED PERPENDICULAR TO THE SLOPE AT MAXIMUM DISTANCE OF 25 FEET APART ALONG THE VERTICAL FACE OF THE SLOPE.

WATTLE SLOPE INTERRUPTERS
SELECTION GUIDELINES

WATTLE SLOPE INTERRUPTERS ARE APPROPRIATE FOR SLOPES 3:1 OR STEEPER WITH SLOPE LENGTHS GREATER THAN 50 FEET ALONG THE VERTICAL FACE OF THE SLOPE.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

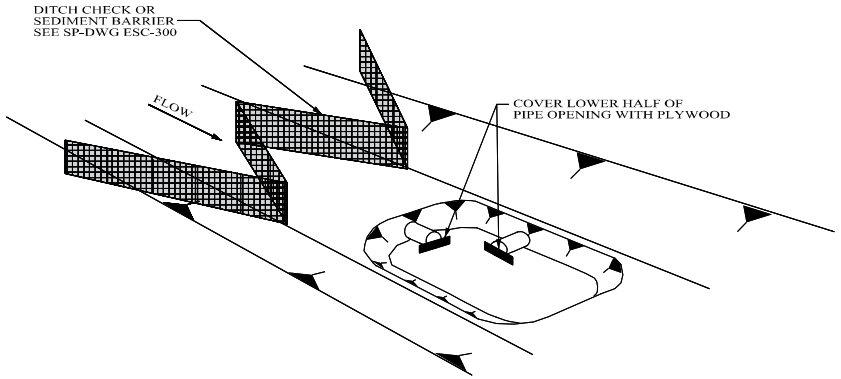
ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Deleted "GEOTEXTILE UNDERLAYMENT", "ANGLE ANCHORS TOWARD WATTLE THROUGH FABRIC" and "TRENCH 5" MIN AND COMPACTED" in Section A-A on 07-23-2025 by J.F.T.

Bureau Std Engr:	G.L.D.
DRAWN BY:	J.F.T.
DATE DRAWN:	07-23-2025
REVISED DATE:	

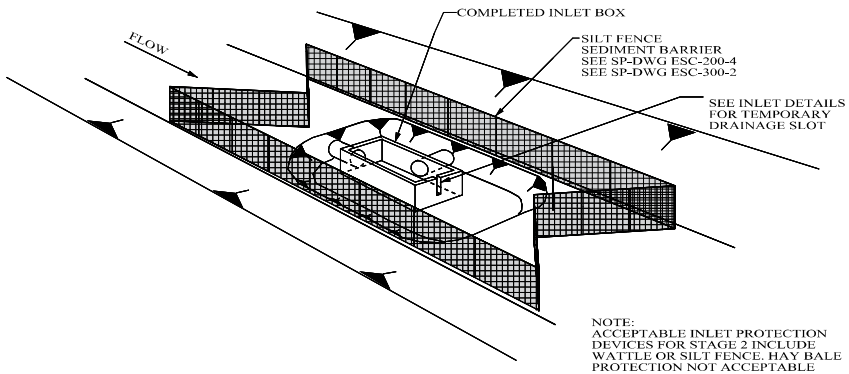
DESIGN BUREAU SPECIAL DRAWING
DETAILS OF WATTLE SLOPE INTERRUPTERS

SPECIAL DRAWING NO	INDEX NO
ESC-300-9	66520



STAGE 1

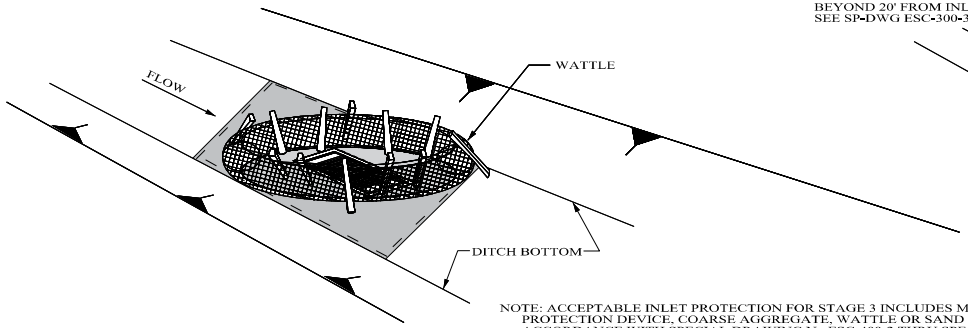
INLET/JUNCTION BOX LOCATION EXCAVATED



NOTE:
ACCEPTABLE INLET PROTECTION DEVICES FOR STAGE 2 INCLUDE WATTLE OR SILT FENCE. HAY BALE PROTECTION NOT ACCEPTABLE DURING THIS PHASE.

STAGE 2

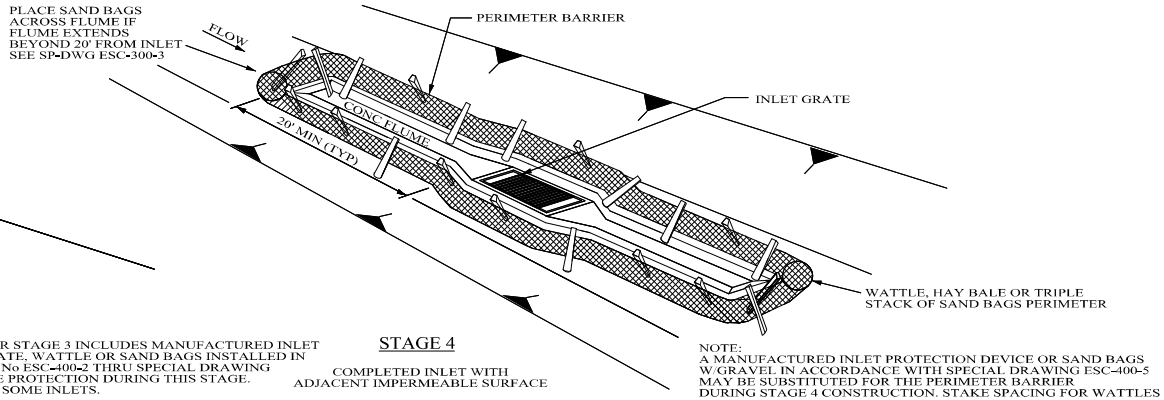
INLET/JUNCTION BOX
CONSTRUCTED BUT NOT BACKFILLED



NOTE: ACCEPTABLE INLET PROTECTION FOR STAGE 3 INCLUDES MANUFACTURED INLET PROTECTION DEVICE, COARSE AGGREGATE, WATTLE OR SAND BAGS INSTALLED IN ACCORDANCE WITH SPECIAL DRAWING No ESC-400-2 THRU SPECIAL DRAWING ESC-400-5. HAY BALES NOT ACCEPTABLE PROTECTION DURING THIS STAGE. STAGE 3 MAY BE THE COMPLETION FOR SOME INLETS.

STAGE 3

INLET CONSTRUCTED AND BACKFILLED



NOTE:
A MANUFACTURED INLET PROTECTION DEVICE OR SAND BAGS W/GRAVEL IN ACCORDANCE WITH SPECIAL DRAWING ESC-400-5 MAY BE SUBSTITUTED FOR THE PERIMETER BARRIER DURING STAGE 4 CONSTRUCTION. STAKE SPACING FOR WATTLES SHOULD BE A MAXIMUM OF 2 FEET.

STAGE 4

COMPLETED INLET WITH
ADJACENT IMPERMEABLE SURFACE

DITCH INLET CONSTRUCTION STAGES

NOTES:

1. FOUNDATION BACKFILL SHOULD BE PLACED IN STAGE 1 IMMEDIATELY AFTER PIPE INSTALLATION. INLET CONSTRUCTION SHOULD COMMENCE AS SOON AS POSSIBLE AND BE CONTINUOUS THROUGH COMPLETION.
2. CONFIGURATIONS MAY BE ADJUSTED WITH APPROVAL OF THE ENGINEER FOR TRAVELWAY SAFETY, WATER FLOW, SOIL OR INSTALLATION CHALLENGES.
3. DURING STAGE 1 AND STAGE 2, SILT SENCE MAY BE REQUIRED UPSLOPE OF THE INLET EXCAVATION AS DIRECTED BY THE ENGINEER.
4. IF SILT FENCING IS INSTALLED AROUND THE INLET EXCAVATION IT SHOULD BE PLACED IN A CONFIGURATION THAT WILL ALLOW INLET CONSTRUCTION.
5. FOR CURB INLET PROTECTION SEE SPECIAL DRAWING No ESC-400-3 AND SPECIAL DRAWING No ESC 400-5.
6. SEE ALDOT LIST II-24 FOR APPROVED MANUFACTURED INLET PROTECTION DEVICES.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

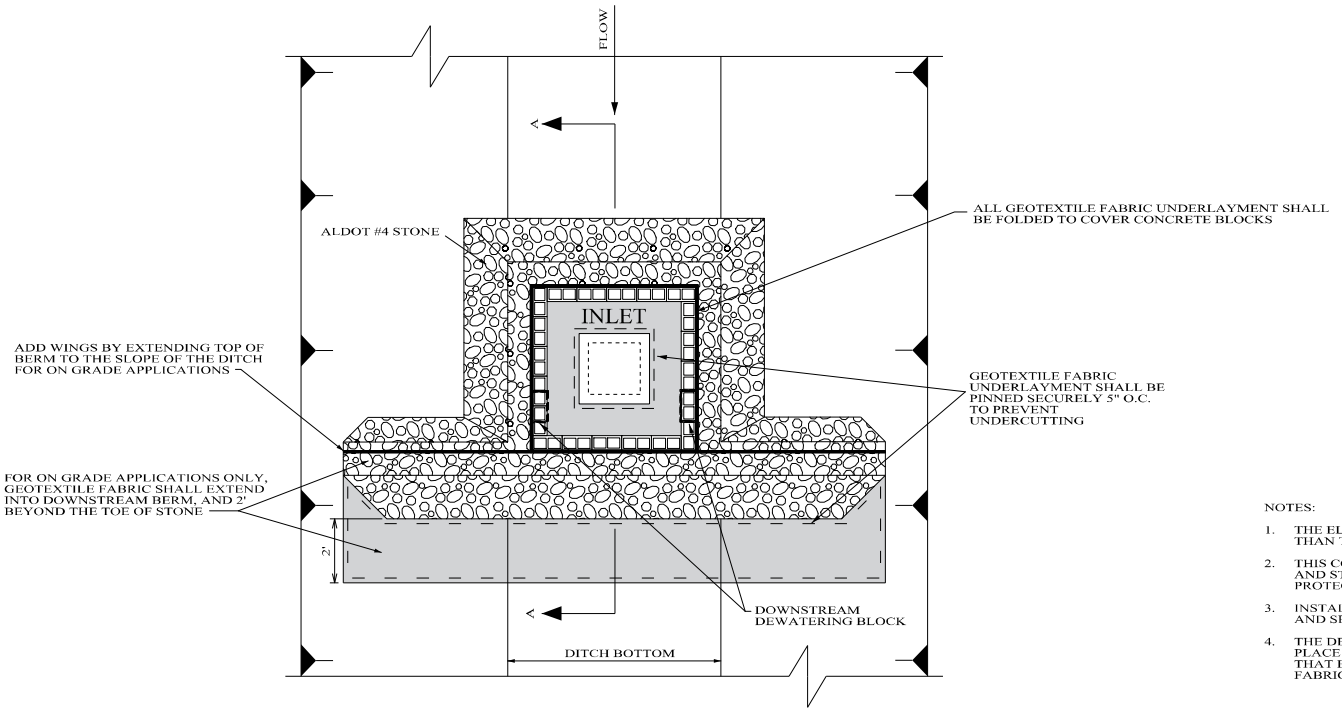
REVISIONS:
1. Revised Note 5 from "SHT 3 OF 5 AND SHT 4 OF 5" to "SHT 3 OF 4 AND SHT 4 OF 4 and removed Notes 3, 4, 5, 6 renumbered & added new No. 6 on 9-2-2011 by J.F.T.
2. Revised and updated "STAGE 3" and "STAGE 4" with new staking on 9-24-2012 by J.F.T.
3. Revised and updated "STAGE 3" note and adjusted "STAGE 4" note. Revised Note 6 on 10-24-2014 by J.F.T.
4. Updated Special Drawing No. from ESC-400 (SHEET 1 OF 5) to ESC-400-1 and others using same pattern on 10-31-2016 by J.F.T. & J.M.M.

Bureau Std Engr:	D.J.W.
DRAWN BY:	
DATE DRAWN:	2006
REVISED DATE:	10-31-2016

DESIGN BUREAU SPECIAL DRAWING

INLET PROTECTION
TYPICAL APPLICATIONS AND DETAILS

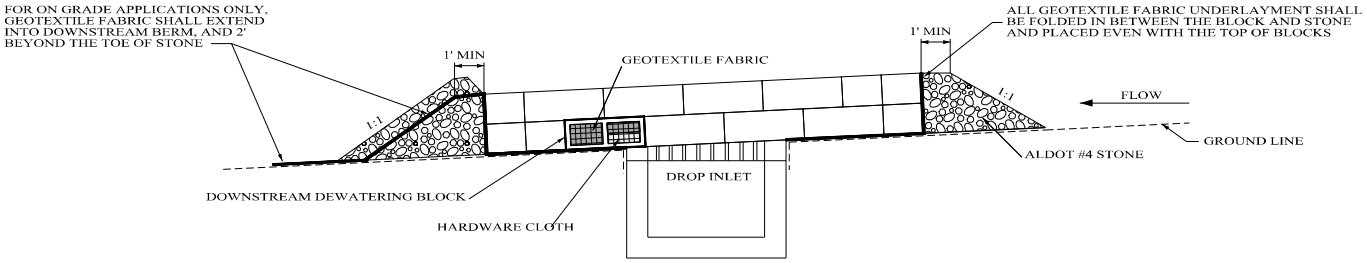
SPECIAL DRAWING NO	INDEX NO
ESC-400-1	66522



PLAN VIEW

NOTES:

1. THE ELEVATION OF THE TOP OF THE REQUIRED STONE BERM SHALL BE LOWER THAN THE TOP OF THE DITCH.
2. THIS COARSE AGGREGATE INLET PROTECTION MAY ONLY BE UTILIZED DURING STAGE 3 AND STAGE 4 INLET CONSTRUCTION. SEE SPECIAL DRAWING No ESC-400-1 FOR INLET PROTECTION TYPICAL APPLICATIONS AND DETAILS.
3. INSTALL LOOSE CONCRETE BLOCKS UPRIGHT IN A STAGGERED CONFIGURATION FOR FIRST AND SECOND LAYER, WITH THE EXCEPTION OF THE DEWATERING BLOCK.
4. THE DEWATERING BLOCKS SHALL BE CONSTRUCTED BY OVERTURNING CONCRETE BLOCK. PLACE HARDWARE CLOTH BETWEEN GEOTEXTILE AND THE OVERTURNED BLOCK SO THAT BOTH HOLES ARE COVERED. REMOVE 3" RECTANGULAR SECTION OF GETEXTILE FABRIC FROM LOWER RIGHT PORTION TO ALLOW DEWATERING WIHTIN 48 HOURS.



SECTION A-A

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Revised Note No 2 on 8-6-2014 by J.F.T.
2. Changed PLAN - ON GRADE to PLAN VIEW. Omitted PLAN - IN SAG, and SECTION B-B. Revised PLAN VIEW, and SECTION A-A to depict new PLAN VIEW cross section. Also made revisions to notes 1 through 3 and added 4 on 10-31-2016 by J.M.M.
3. Updated Special Drawing No. from ESC-400 (SHEET 2 OF 5) to ESC-400-2 on 10-31-2016 by J.F.T. & J.M.M.

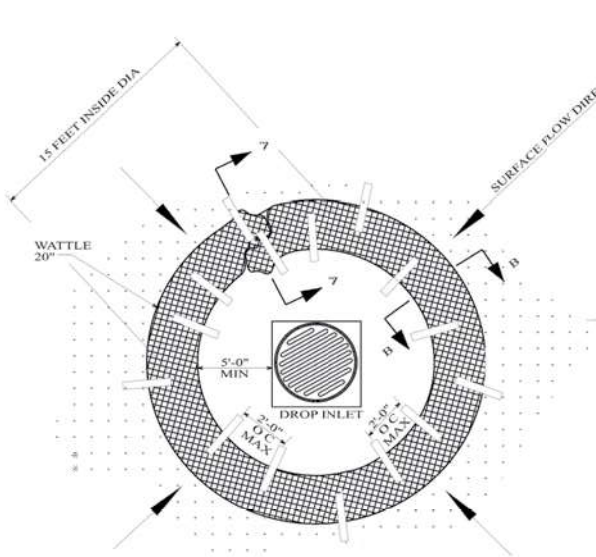
Bureau Std Engr: D.J.W.
DRAWN BY:
DATE DRAWN: 2006
REVISED DATE: 10-31-2016

DESIGN BUREAU SPECIAL DRAWING
INLET PROTECTION
DETAILS FOR COARSE AGGREGATE
ON GRADES & SAGS

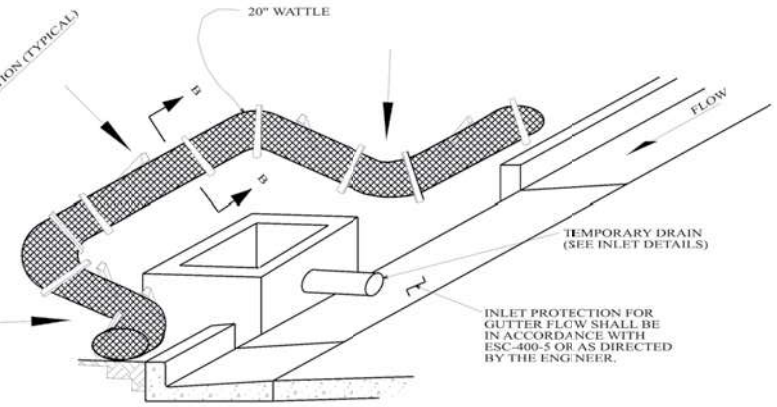
SPECIAL DRAWING NO: ESC-400-2

INDEX NO: 66523

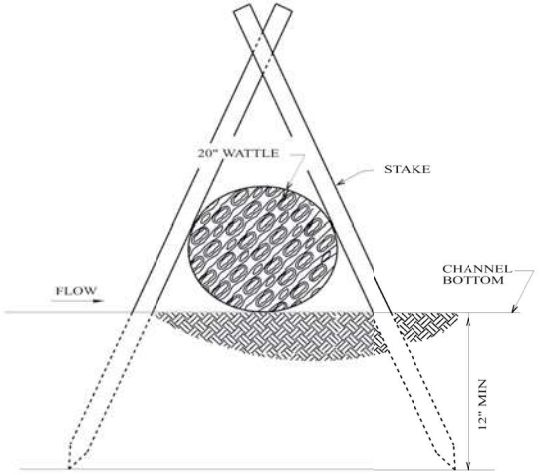
REFERENCE PROJECT NO	FISCAL YEAR	SHEET NO



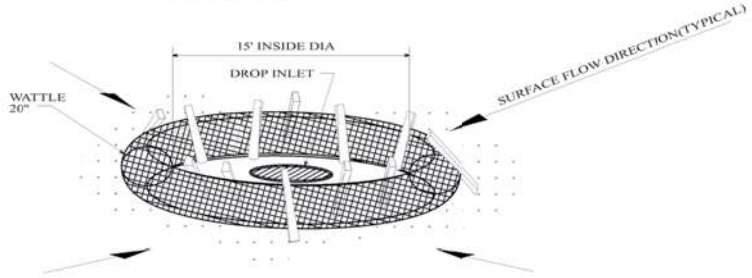
PLAN VIEW



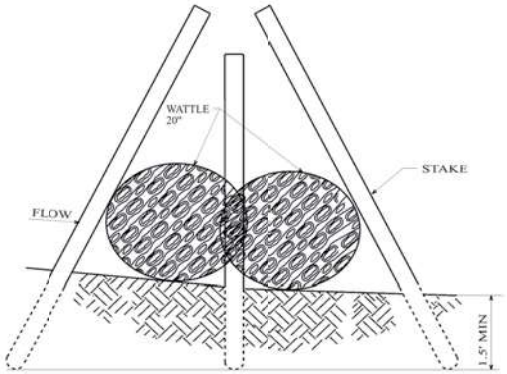
CURB INLET PROTECTION (STAGE 2)
SINGLE OR DOUBLE WING INLET



SECTION B-B



DROP INLET PROTECTION



SECTION A-A

NOTES:

1. ANCHORING STAKES SHALL BE SIZED, SPACED, AND BE OF A MATERIAL THAT EFFECTIVELY SECURES THE WATTLE. STAKE SPACING SHALL BE A MAXIMUM OF TWO FEET.
2. STAPLES SHALL BE PLACED THROUGH THE BOTTOM NETTING ON THE WATTLE ON THE INNER AND OUTER PORTIONS TO CREATE A SOLID INTERFACE BETWEEN THE WATTLE AND THE GROUND.
3. OVERLAP ENDS OF WATTLES PER MANUFACTURERS RECOMMENDATIONS (1'MIN, 3'MAX).
4. SEE ALDOT LIST II-24 FOR APPROVED WATTLES.
5. SILT FENCE OR SAND BAGS MAY ALSO BE USED FOR THIS APPLICATION. HAY BALES NOT ACCEPTABLE DURING THIS STAGE.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

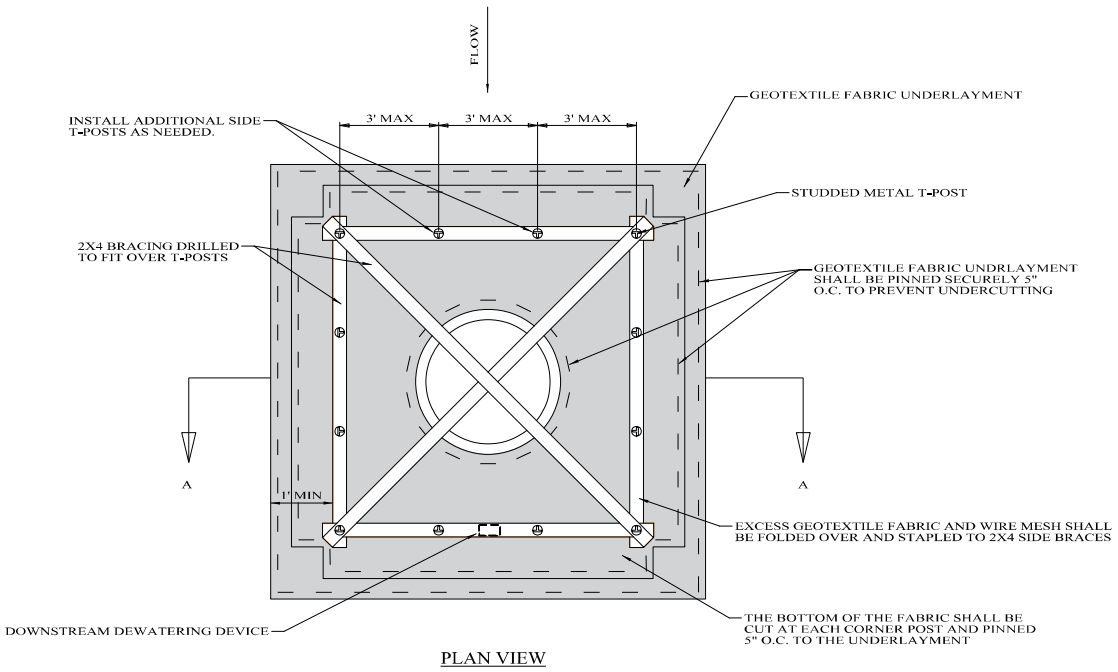
REVISIONS:
1. Revised note on "CURB INLET PROTECTION (STAGE 2)" from "5 OF 5" to "4 OF 4" and added "REQUIRED TRENCHING" on SECTION A-A and "SECTION B-B" on 8-24-2011 by J.F.T.
2. Revised and updated "CURB INLET PROTECTION (STAGE 2)", "DROP INLET PROTECTION", "SECTION A-A" and "SECTION B-B" to show new staking w/o trenching on 09-24-2012 by J.F.T.
3. Deleted a "NOTE" and replaced and revised Note 4. Revised and updated "PLAN VIEW" on 7-11-2013 by J.F.T.
4. Updated Special Drawing No. from ESC-400 (SHEET 3 OF 5) to ESC-400-3 on 10-31-2016 by J.F.T. & J.M.M.
5. Removed and replaced Note 2 and renumbered numbers 2, 3, and 4 to 3, 4, and5 on 08-27-2025 by J.F.T.

Bureau Std Engr:	G.L.D.
DRAWN BY:	
DATE DRAWN:	2006
REVISED DATE:	8-27-2025

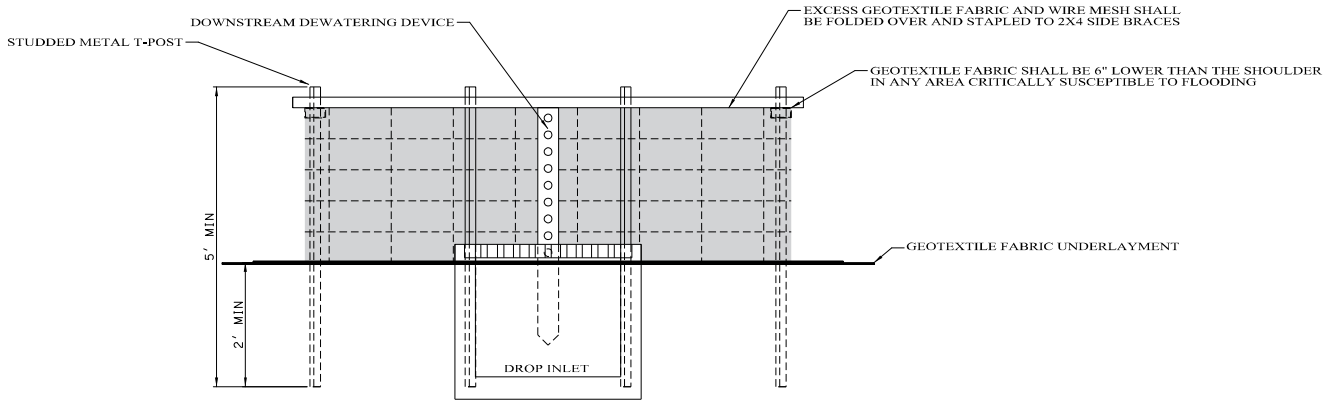
DESIGN BUREAU SPECIAL DRAWING

INLET PROTECTION DETAILS OF WATTLES

SPECIAL DRAWING NO	INDEX NO
ESC-400-3	66524



PLAN VIEW



SECTION A-A

NOTES:

1. THE TOP OF THE REQUIRED GEOTEXTILE FABRIC SHALL BE 6" LOWER THAN THE SHOULDER ELEVATION IN ANY AREA CRITICALLY SUSCEPTIBLE TO FLOODING.
2. DEWATERING HOLES SHALL BE 1" - 1.5" IN DIAMETER AND SPACED 2" - 3" APART TO ALLOW FOR DEWATERING IN NO MORE THAN 48 HOURS.
3. FASTEN DEWATERING DEVICE TO THE 2X4 SIDE BRACE.
4. STAPLE GEOTEXTILE FABRIC TO DEWATERING DEVICE AND CUT CROSS SLITS IN THE FILTER FABRIC AT THE HOLE LOCATIONS TO ALLOW WATER TO FLOW THROUGH.
5. INLET PROTECTION DEVICE SHALL ONLY BE PAID AS INLET PROTECTION STAGE 3 OR 4.
6. SILT FENCE INLET PROTECTION SHALL NOT BE UTILIZED DURING STAGE 1 AND STAGE 2 INLET CONSTRUCTION. SEE SPECIAL DRAWING No ESC-400-1 FOR INLET PROTECTION TYPICAL APPLICATIONS AND DETAILS.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

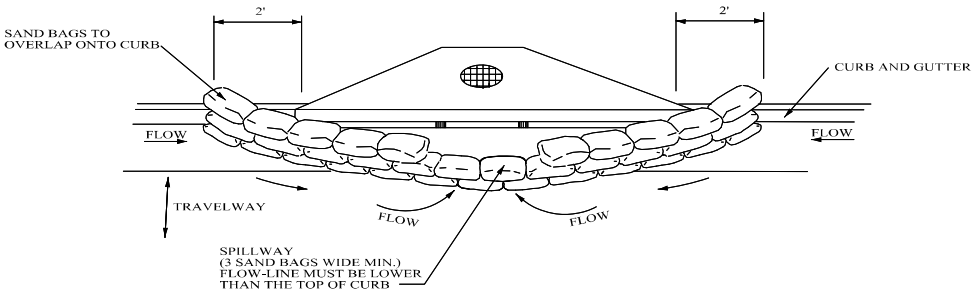
REVISIONS:
1.

Bureau Std Engr: D.J.W.
DRAWN BY:
DATE DRAWN: 2016
REVISED DATE:

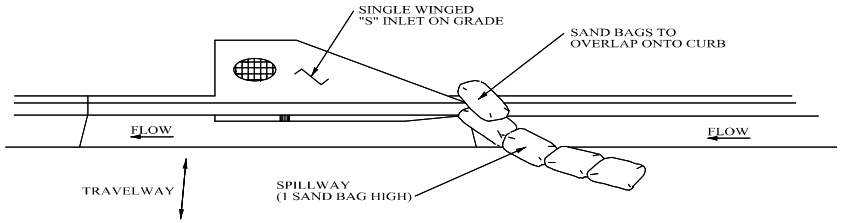
DESIGN BUREAU SPECIAL DRAWING
INLET PROTECTION
DETAILS OF SILT FENCE

SPECIAL DRAWING NO: ESC-400-4

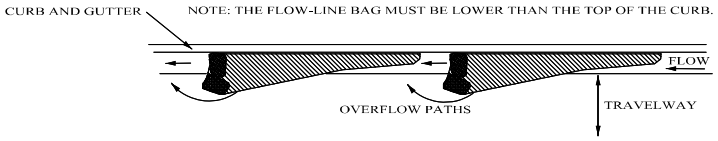
INDEX NO: 66525



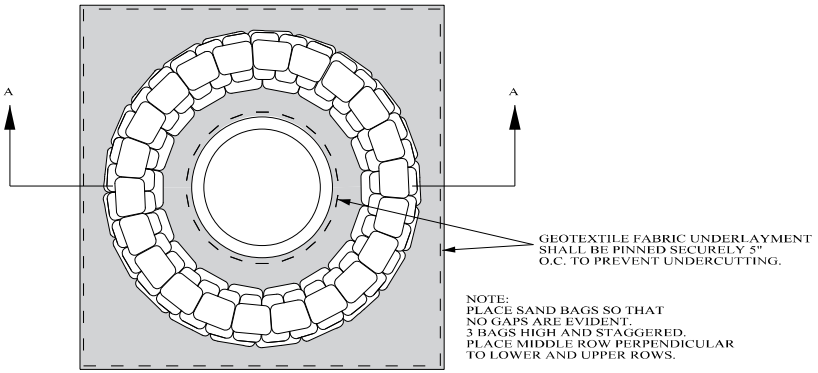
TYPICAL (SAND BAG) PROTECTION FOR INLET IN SAG



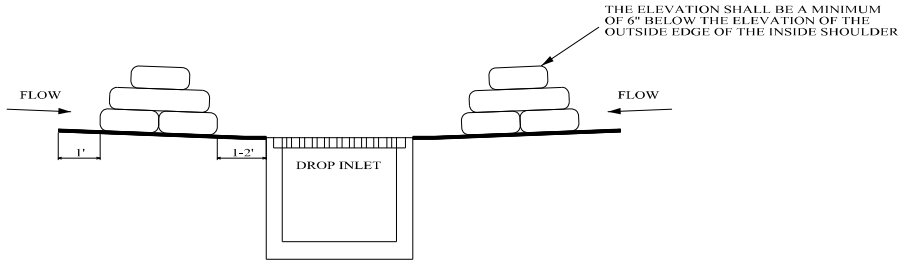
TYPICAL (SAND BAG) PROTECTION FOR INLET ON GRADE



CURB AND GUTTER SEDIMENT
CONTAINMENT SYSTEM



DROP INLET
PLAN VIEW



SECTION A-A
SAND BAG BARRIER

NOTES:

1. CURB INLET PROTECTION CAN ALSO BE USED AT OTHER EDGE-OF-PAVEMENT TYPE INLETS SUCH AS TYPE "E" INLETS AT MEDIAN BARRIER LOCATIONS.
2. SEE SHT ESC-400-3 FOR INLET PROTECTION WHERE INLET CONSTRUCTION HAS NOT BEEN COMPLETED.
3. THIS CURB INLET PROTECTION METHOD CAN BE USED DURING ANY STAGE OF BASE AND PAVEMENT CONSTRUCTION.
4. BAG HEIGHT AND NUMBER OF BAGS SHOULD BE BASED ON CURB HEIGHT AND USE OF TRAVELWAY.
5. SEDIMENT SHOULD BE CONTROLLED PRIOR TO ENTERING GUTTER. GUTTER CHECKS AND INLET PROTECTION ARE FOR SECONDARY CONTROL.
6. REMOVE ACCUMULATED SEDIMENT AFTER EVERY RAINFALL. SWEEP SEDIMENT FROM HARD SURFACES AND DISPOSE OF APPROPRIATELY AWAY FROM INLETS AND/OR WATER BODIES.
7. IF DENUDED AREAS EXIST BEHIND THE INLET, A SEDIMENT BARRIER SHOULD BE INSTALLED AROUND IT'S PERIMETER TO CONTROL SEDIMENT. SEE SHT ESC-400-3.
8. PAYMENT FOR CURB INLET PROTECTION FOR WORK REQUIRED BEYOND STAGE 2 (SEE SHT ESC-400-3) WILL BE MADE AS APPROPRIATE FOR ITEMS USED.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

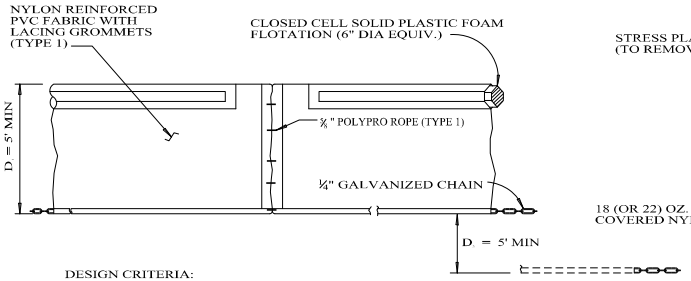
REVISIONS:
1. Changes Notes No's 2, 7, and 8 from "SHT. 3 OF 5" to read "SHT. 3 OF 4" on 8-23-2011 by J.F.T.
2. Revised Note and Description Block on 8-6-2014 by J.F.T.
3. Changed Notes No's 2, 7, and 8 from "SHT. 3 OF 5" to read "ESC-400-3" on 10-31-2016 by J.M.M.
4. Changed PLAN VIEW, SECTION A-A, and note at lower right corner of PLAN VIEW, also added two callouts on 10-31-2016 by J.M.M.
5. Updated Special Drawing No. from ESC-400 (SHEET 5 OF 5) to ESC-400-5 and others using same pattern on 10-31-2016 by J.F.T. & J.M.M.

Bureau Std Engr: D.J.W.
DRAWN BY:
DATE DRAWN: 2006
REVISED DATE: 10-31-2016

DESIGN BUREAU SPECIAL DRAWING
INLET PROTECTION
DETAILS OF SAND BAGS

SPECIAL DRAWING NO: ESC-400-5

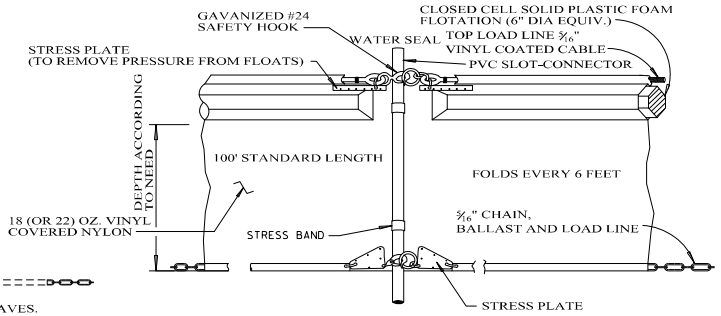
INDEX NO: 66526



DESIGN CRITERIA:
TYPE 1 CONFIGURATION SHOULD BE USED IN PROTECTED AREAS WHERE THERE IS NO CURRENT AND THE AREA IS SHELTERED FROM WIND AND WAVES.

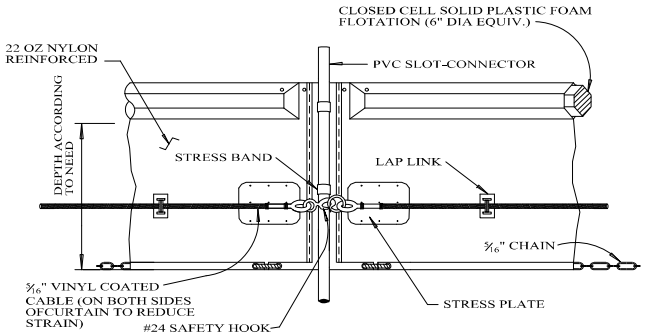
D = (SINGLE PANEL FOR DEPTHS 5' OR LESS).
D = (ADDITIONAL PANEL FOR DEPTHS > 5').
CURTAIN TO REACH BOTTOM UP TO DEPTHS OF 10 FEET. TWO(2) PANELS TO BE USED FOR DEPTHS GREATER THAN 10 FEET UNLESS SPECIAL DEPTH CURTAINS SPECIFICALLY CALLED FOR IN THE PLANS OR AS DETERMINED BY THE ENGINEER.

TYPE 1



TYPE 2 CONFIGURATION SHOULD BE USED IN PROTECTED AREAS WHERE THERE MAY BE SMALL TO MODERATE CURRENT RUNNING (≤ 3.5' PER SECOND) AND/OR WIND AND WAVE ACTION CAN AFFECT THE CURTAIN.

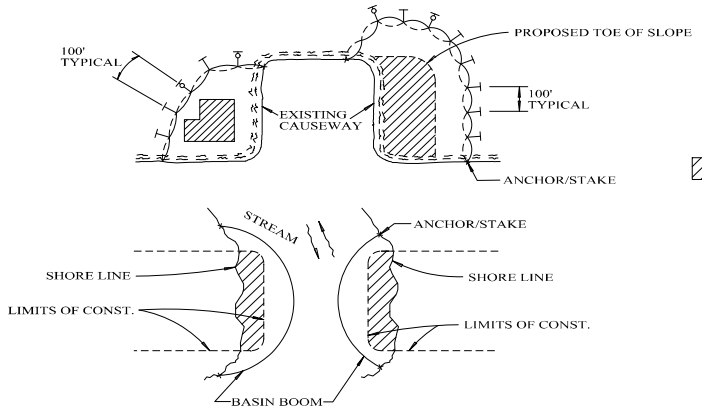
TYPE 2



TYPE 3 CONFIGURATION SHOULD BE USED IN AREAS WHERE CONSIDERABLE CURRENT (≤ 5' PER SECOND) MAY BE PRESENT, WHERE TIDAL ACTION MAY BE PRESENT, AND/OR WHERE THE CURTAIN IS POTENTIALLY SUBJECT TO WIND AND WAVE ACTION.

TYPE 3

TYPICAL FLOATING BASIN BOOM INSTALLATION



LEGEND

- DREDGE, FILL OR WORK AREA
- MOORING BOUY W/ ANCHOR
- ANCHOR

NOTES:

1. THE CONTRACTOR IS RESPONSIBLE FOR SELECTION OF THE APPROPRIATE TYPE OF FLOATING BASIN BOOM AND INSTALLATION METHODS BASED ON WATER BODY CONDITIONS.
2. FLOATING BASIN BOOMS ARE TO BE INSTALLED IN ACCORDANCE WITH MANUFACTURERS DIRECTIONS.
3. FLOATING BASIN BOOMS CAN BE STAKED AND/OR ANCHORED IN STILL OR MOVING WATERS.
4. FLOATING BASIN BOOMS ARE INTENDED TO PREVENT SEDIMENT MIGRATION WITHIN THE WATER BODY. THEY ARE NOT INTENDED TO BE INSTALLED AS THE PRIMARY SEDIMENT CONTROL METHOD, OR TO CAPTURE SEDIMENT FROM UPLAND AREAS AS A PRIMARY FUNCTION. OTHER UPLAND EROSION AND SEDIMENT CONTROL MEASURES SHOULD BE INCORPORATED AS PROVIDED IN THE PLANS AND STANDARD DRAWINGS.
5. FLOATING BASIN BOOM SHOWN MAY BE SIMILAR TO PROPRIETARY DESIGNS. FUNCTIONALLY EQUIVALENT DESIGNS MEETING CONTRACT REQUIREMENTS MAY ALSO BE USED.

FLOATING BASIN BOOM APPLICATIONS

NOT TO SCALE

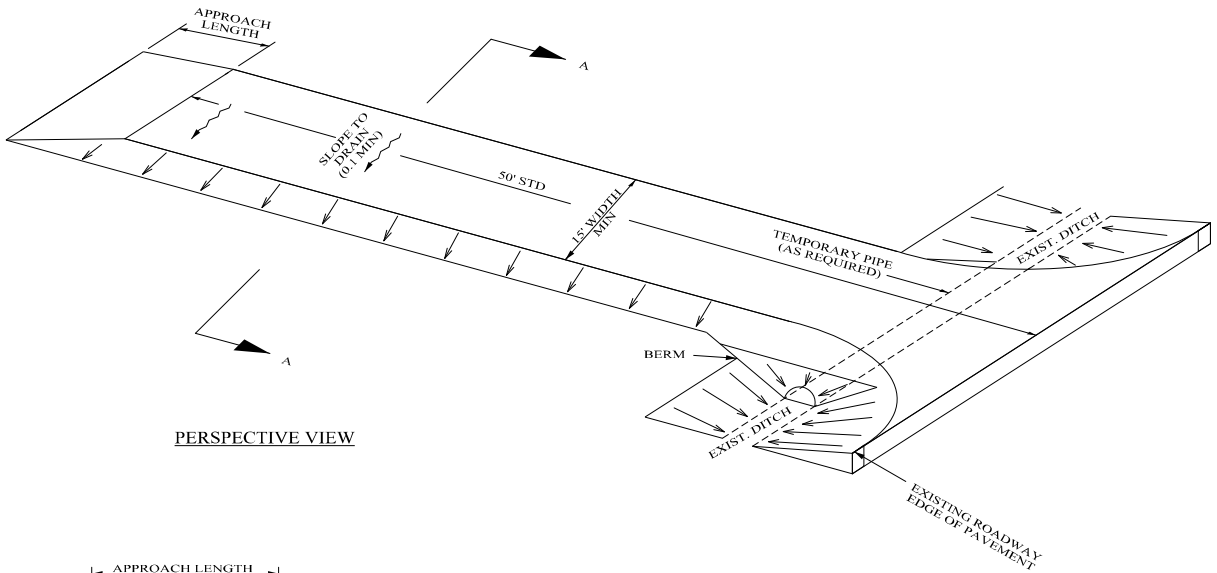
--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

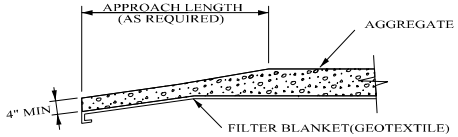
REVISIONS:
1.

Bureau Std Engr: D.J.W.
DRAWN BY:
DATE DRAWN: 2006
REVISED DATE:

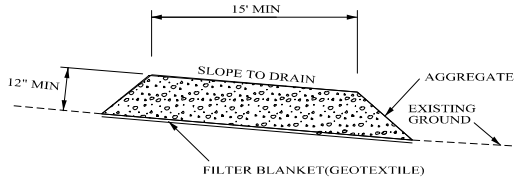
DESIGN BUREAU SPECIAL DRAWING	SPECIAL DRAWING NO	INDEX NO
FLOATING BASIN BOOM	ESC-501	66529



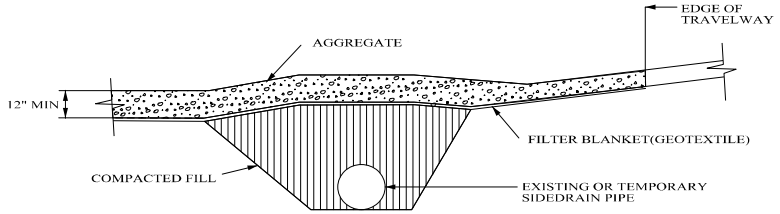
PERSPECTIVE VIEW



TRANSITION DETAIL



SECTION A-A



RURAL CONNECTION DETAIL

NOTES:

1. A STABILIZED CONSTRUCTION ENTRANCE SHALL BE CONSTRUCTED AT LOCATIONS SHOWN ON THE EROSION SEDIMENT CONTROL SHEETS OR AS APPROVED BY THE ENGINEER BASED ON SAFETY, ECONOMY AND CONSTRUCTION SEQUENCE. THESE ENTRANCES ARE POINTS OF EGRESS FROM UNSTABILIZED AREAS OF THE PROJECT TO PUBLIC ROADS WHERE OFFSITE TRACKING OF MUD COULD OCCUR. TRAFFIC FROM UNSTABILIZED AREAS OF THE PROJECT SHALL BE DIRECTED THRU THE STABILIZED ENTRANCE. BARRIERS, FLAGGING, OR OTHER POSITIVE MEANS SHALL BE USED AS REQUIRED TO LIMIT AND DIRECT VEHICULAR EGRESS ACROSS THE STABILIZED ENTRANCE.
2. THE CONTRACTOR MAY PROPOSE AN ALTERNATIVE TECHNIQUE TO MINIMIZE OFFSITE TRACKING OF SEDIMENT. THE ALTERNATIVE MUST BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO IT'S USE.
3. ALL MATERIALS SPILLED, DROPPED, OR TRACKED ONTO PUBLIC ROADS (INCLUDING THE STABILIZED CONSTRUCTION ENTRANCE AGGREGATE AND CONSTRUCTION MUD) SHALL BE REMOVED DAILY, OR MORE FREQUENTLY IF SO DIRECTED BY THE ENGINEER.
4. AGGREGATES SHALL BE ALDOT SIZE #1. SIZES CONTAINING EXCESSIVE SMALL AGGREGATE WILL TRACK OFF THE PROJECT AND ARE UNSUITABLE.
5. THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL ALLOW IT TO PERFORM IT'S FUNCTION TO PREVENT OFFSITE TRACKING, THE STABILIZED CONSTRUCTION ENTRANCE SHALL BE RINSED WHEN NECESSARY TO MOVE ACCUMULATED MUD DOWNWARD THRU THE STONE. ADDITIONAL STABILIZATION OF THE VEHICULAR ROUTE LEADING TO THE STABILIZED ENTRANCE MAY BE REQUIRED TO LIMIT THE MUD TRACKED.
6. THE NOMINAL SIZE OF A STANDARD STABILIZED CONSTRUCTION ENTRANCE IS 15' X 50' UNLESS OTHERWISE SHOWN IN THE PLANS. IF THE VOLUME OF ENTERING AND EXITING VEHICLES WARRANT, A 30' WIDTH MAY BE USED IF APPROVED BY THE ENGINEER.

NOT TO SCALE

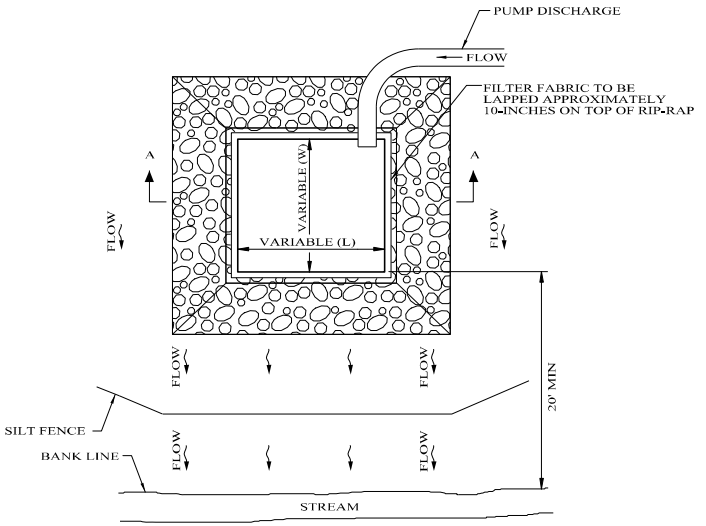
--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

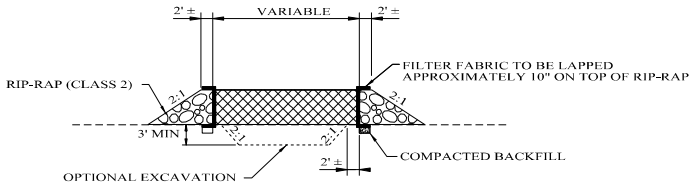
REVISIONS:
1. Changed Plan View to Perspective View & revised Note 1 on 8-24-2011 by J.F.T.

Bureau Std Engr: D.J.W.
DRAWN BY:
DATE DRAWN: 2006
REVISED DATE: 8-24-2011

DESIGN BUREAU SPECIAL DRAWING	SPECIAL DRAWING NO	INDEX NO
STABILIZED CONSTRUCTION ENTRANCE	ESC-502	66532



PLAN VIEW

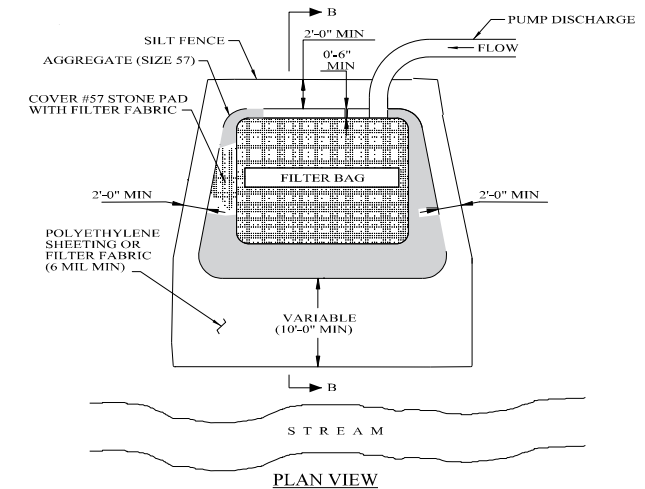


SECTION A-A

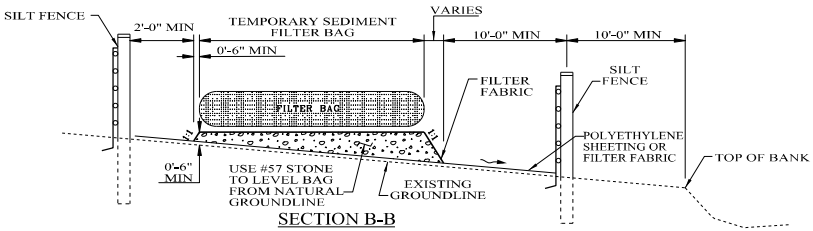
TEMPORARY DEWATERING STRUCTURE (BERM AND FABRIC)

NOTES:

1. THE PRIMARY USE OF THE TEMPORARY DEWATERING STRUCTURE IS FOR DEWATERING COFFERDAMS, TRENCHES, SPREAD FOOTINGS, ENCLOSED DITCHES, ETC.
2. THE ACCUMULATED SEDIMENT MUST BE REMOVED WHEN THE BASIN IS HALF FULL.
3. DIVERT ANY STORMWATER AWAY FROM THE TEMPORARY DEWATERING STRUCTURES.
4. THE USE OF SOCKS TO COLLECT SEDIMENT WHEN PUMPING FROM TEMPORARY DEWATERING STRUCTURE INTO AN ADJACENT STREAM MAY BE USED WHEN APPROVED BY THE ENGINEER.
5. INSTALL SILT FENCE BETWEEN STREAM AND/OR DRAINAGE DITCH AND THE TEMPORARY DEWATERING STRUCTURE.
6. TRENCH FILTER FABRIC INTO GROUND, 6" MIN.
7. THE DETAILS SHOWN ARE OPTIONAL RECOMMENDATIONS, BUT NOT MANDATORY.



PLAN VIEW



SECTION B-B

TEMPORARY DEWATERING STRUCTURE (FILTER BAG)

NOTES:

1. FILTER BAGS ARE TYPICALLY USED FOR DEWATERING COFFER DAMS, TRENCHES, SPREAD FOOTINGS AND ENCLOSED DITCHES ETC. IN URBAN AREAS AND NEAR SENSITIVE WATER BODIES.
2. THE CONTRACTOR SHALL EXERCISE CAUTION NOT TO BURST OR DAMAGE THE TEMPORARY SEDIMENT FILTER BAG WHEN PUMPING.
3. SEDIMENT SHOULD BE DISPOSED OF IN UPLAND AREAS AWAY FROM WATER BODIES. AFTER REMOVAL OF ACCUMULATED SEDIMENT, DISPOSE OF THE FILTER FABRIC BAG WITH OTHER ITEMS OF CONSTRUCTION DEBRIS.
4. FILTER BAGS MAY ALSO BE PLACED IN AN EXCAVATED PIT FOR REDUNDANCY.
5. THE DETAILS SHOWN ARE OPTIONAL RECOMMENDATIONS, BUT NOT MANDATORY.

TEMPORARY DEWATERING STRUCTURE VOLUMES

PUMP		RATE		STUCTURE VOLUME REQUIRED (CUBIC FEET)
TYPE	(DIA.)	MANUF. CAPACITY	GPM (GALLONS PER MINUTE)	
CONSTRUCTION				
	2 IN	8,400 GPH	140 GPM	2,240 CF
	3 IN	15,600 GPH	260 GPM	4,160 CF
	4 IN	30,000 GPH	500 GPM	8,000 CF
	6 IN	66,000 GPH	1,100 GPM	17,600 CF

VOLUME OF DEWATERING STRUCTURE SHOWN IN EROSION AND SEDIMENT CONTROL PLANS IS TO BE BASED ON USE OF 4 INCH CONSTRUCTION PUMP SHOWN IN THE ABOVE TABLE.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

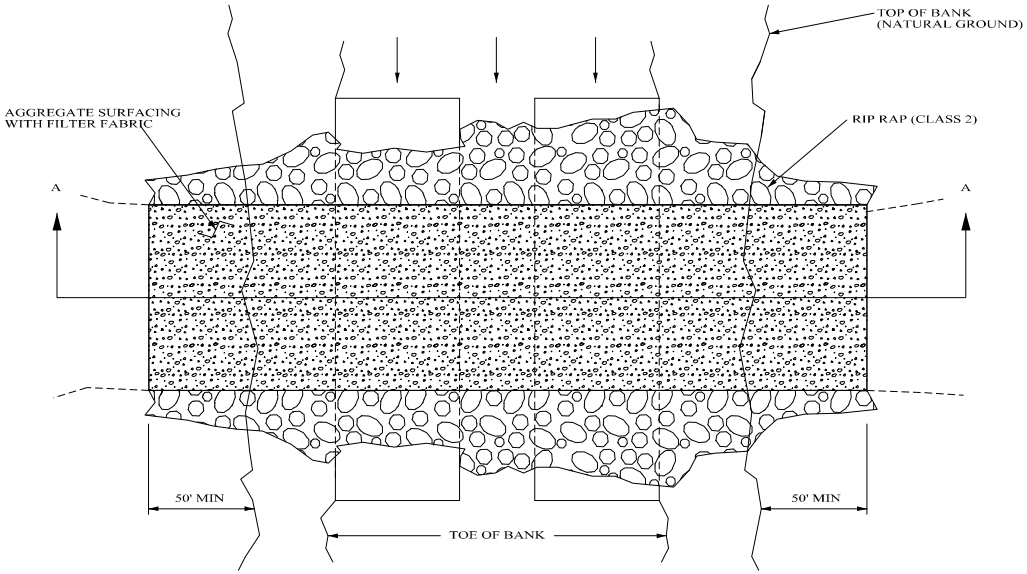
REVISIONS:
1. Corrected Silt Fence line style on 8-23-2011 by J.F.T.
2. Added and inserted in Note 2 the word "CAUTION" on 08-27-2025 by J.F.T.

Bureau Std Engr:	G.L.D.
DRAWN BY:	
DATE DRAWN:	2006
REVISED DATE:	8-27-2025

DESIGN BUREAU SPECIAL DRAWING
TEMPORARY DEWATERING STRUCTURES

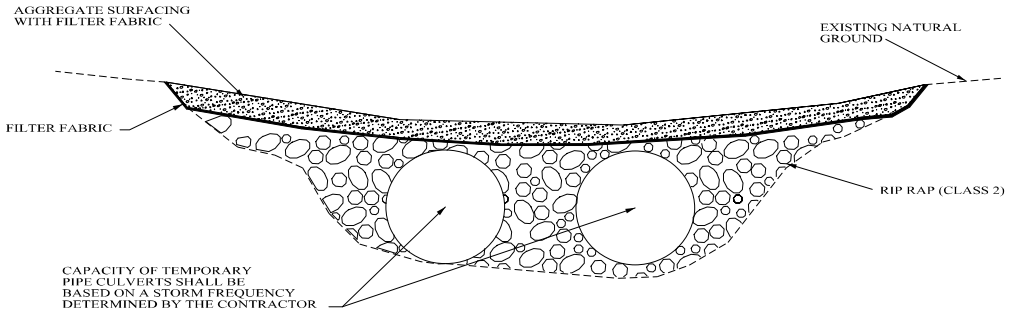
SPECIAL DRAWING NO
ESC-503

INDEX NO
66535



PLAN VIEW

TEMPORARY CULVERT STREAM CROSSING



SECTION A-A

NOTES:

1. TEMPORARY CULVERT STREAM CROSSINGS PROVIDE A MEANS FOR VEHICLES AND EQUIPMENT TO SAFELY CROSS A WATERCOURSE WHILE MINIMIZING DAMAGE TO THE CHANNEL AND/OR BANKS.
2. TEMPORARY CULVERT STREAM CROSSINGS, WHEN PERMITTED BY THE ENGINEER, SHALL BE CONSTRUCTED TO SAFELY PASS EXPECTED MEAN WATER FLOW OF THE STREAM FOR THE TIME OF YEAR AND LENGTH OF TIME THAT THEY ARE INSTALLED.
3. TEMPORARY STREAM CROSSINGS SHALL BE DESIGNED TO ENSURE STRUCTURAL INTEGRITY AND STABILITY, AND MAINTAIN NORMAL DOWNSTREAM FLOWS. THE USE OF INSTREAM CROSSINGS AND INSTREAM AGGREGATE FILL SHALL BE MINIMIZED TO THE EXTENT PRACTICABLE.
4. A CONTINUOUS PROGRAM OF EFFECTIVE EROSION AND SEDIMENT CONTROL MEASURES SHALL BE IMPLEMENTED PRIOR TO AND CONCURRENT WITH ANY TYPE OF CONSTRUCTION ACTIVITY WITHIN THE BANKS OF A STREAM. WHEN A CROSSING IS NO LONGER NEEDED, THE STREAMBED AND STREAM BANKS SHALL BE RESTORED TO PRE-DISTURBANCE CONDITIONS, OR SUCH A CONDITION THAT PROVIDES SUBSTANTIALLY EQUIVALENT PROTECTION OF WATER QUALITY.
5. LOCATIONS OR TYPES OF TEMPORARY CULVERT STREAM CROSSINGS WILL NOT BE SHOWN ON THE PLANS AS REQUIRED ITEMS. NOR WILL REQUIREMENTS FOR MATERIALS OR CONSTRUCTION BE FOUND IN THE STANDARD SPECIFICATIONS.
6. THE CONTRACTOR MAY PROPOSE OTHER OPTIONS FOR TEMPORARY STREAM CROSSINGS SUCH AS STEEL/TIMBER BRIDGE, FORD OR MATS.
7. THE DETAILS PROVIDED DEPICT A TYPICAL TEMPORARY CULVERT STREAM CROSSING. THE DETAILS SHOWN ARE OPTIONAL RECOMMENDATIONS, BUT NOT MANDATORY. PERMITTING APPROVAL REQUIREMENTS MAY PROHIBIT THE PLACEMENT OF MATERIAL WITHIN STREAM BANKS.
8. CONTRACTOR SHALL SUBMIT DETAILED STREAM CROSSING PLAN IN ACCORDANCE WITH ALDOT SPECIFICATION SECTION 107.23.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

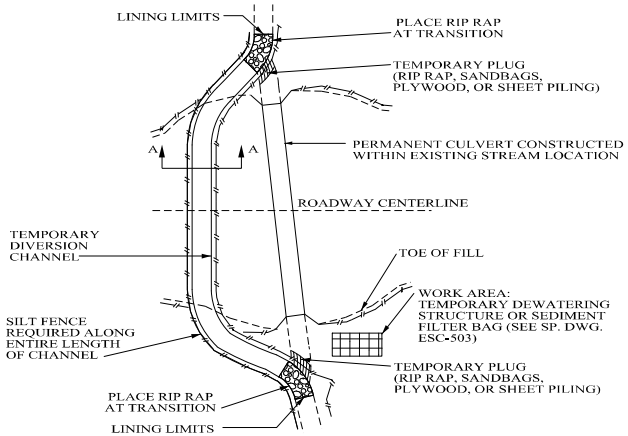
ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Corrected Section A-A to show the low point in the center of the Channel and expanded Note No. 7 on 7-12-2007 by W.W.A.
2. Added Note 8 on 8-23-2011 by J.F.T.

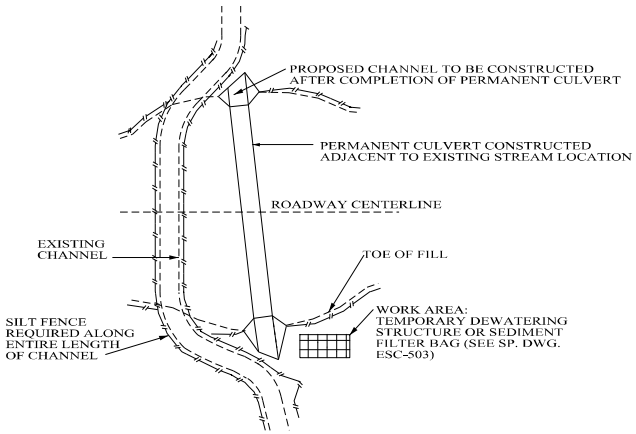
Bureau Std Engr:	D.J.W.
DRAWN BY:	
DATE DRAWN:	2006
REVISED DATE:	8-23-2011

DESIGN BUREAU SPECIAL DRAWING
TEMPORARY CULVERT STREAM CROSSING

SPECIAL DRAWING NO	INDEX NO
ESC-504	66538



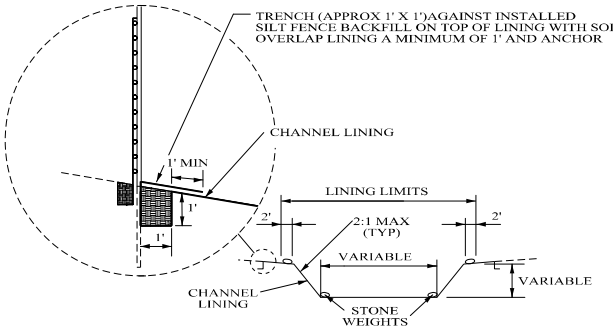
CULVERT CONSTRUCTED
WITHIN EXISTING STREAM



CULVERT CONSTRUCTED
OUTSIDE EXISTING STREAM

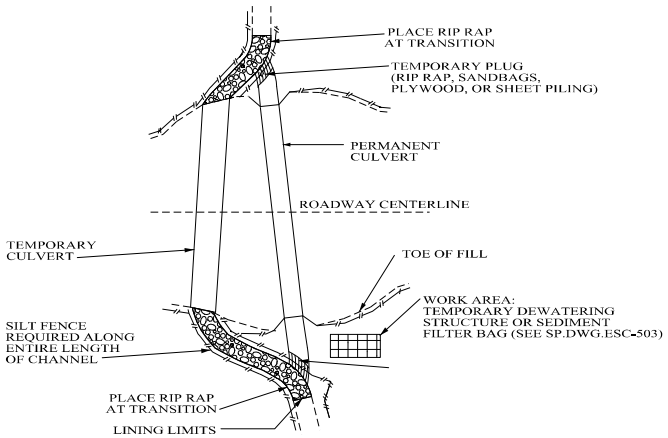
NOTES:

1. TEMPORARY DIVERSION CHANNELS MAY BE USED TO DIVERT NORMAL STREAM PATH FLOW FROM AN ERODIBLE AREA UNTIL SUCH AREAS CAN BE STABILIZED.
2. CONTRACTOR SHALL DETERMINE CULVERT AND DIVERSION CHANNEL SIZES, CONSTRUCTION METHODS AND MATERIALS FOR TEMPORARY CULVERT CROSSINGS.
3. FILTER FABRIC OR SUITABLE PLASTIC SHEETING MAY BE USED WITHOUT RIP-RAP FOR CHANNEL FLOW VELOCITIES OF LESS THAN 3.0 FPS.
4. RIP-RAP WITH FILTER FABRIC MAY BE USED FOR CHANNEL FLOW VELOCITIES OF 3.0 FPS TO 9.0 FPS. THE RIP-RAP SHALL BE SIZED USING FHWA HEC-15 DESIGN OF ROADSIDE CHANNELS WITH FLEXIBLE LININGS.
5. LOCATIONS OR TYPES OF TEMPORARY DIVERSION WILL NOT BE SHOWN ON THE PLANS AS REQUIRED ITEMS NOR WILL REQUIREMENTS FOR MATERIALS OR CONSTRUCTION BE FOUND IN THE STANDARD SPECIFICATIONS.
6. DIVERSION CHANNEL SHALL BE STABILIZED AND INSPECTED BY THE ENGINEER BEFORE FLOW IS DIVERTED.
7. DURING CONSTRUCTION OF DIVERSION CHANNEL, DAMAGE TO THE EXISTING STREAM, CANOPY REMOVAL, AND DEPTH OF THE CHANNEL CONSTRUCTION SHALL BE MINIMIZED.
8. NEW CHANNEL CONSTRUCTION SHALL BE COMPLETED IN THE DRY BEFORE DIVERTING WATER FROM THE EXISTING CHANNEL. WHERE THIS IS NOT FEASIBLE, TEMPORARY FLOW DIVERSION STRUCTURES CAN BE USED UNTIL WORK IS COMPLETE. THESE STRUCTURES CAN BE ANY NON-ERODIBLE MATERIAL.
9. CONSTRUCTION OF THE CHANNEL RELOCATIONS AND CULVERTS SHALL PROCEED AS FOLLOWS:
   - 9.1. CONSTRUCT A MEANDERING TEMPORARY CHANNEL CHANGE ADJACENT TO THE PROPOSED CULVERT TO DIVERT WATER TEMPORARILY DURING THE CULVERT CONSTRUCTION. TEMPORARY EROSION CONTROL MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS.
   - 9.2. RELOCATE CHANNEL AND CONSTRUCT CULVERT SIMULTANEOUSLY.
   - 9.3. SOD AND/OR RIP-RAP RECONSTRUCTED BANKS AT TRANSITIONS. THE UPPER CHANNEL PLUG IS TO REMAIN IN PLACE UNTIL SUBNOTE (9.1) THROUGH (9.4) UNDER THIS HEADING ARE COMPLETED TO INSURE THAT ALL CONSTRUCTION IS IN THE DRY.
   - 9.4. IF AN EARTH PLUG IS NECESSARY AT THE DOWNSTREAM END OF THE CHANNEL IT SHOULD BE REMOVED FIRST, THEN REMOVE THE UPPER PLUG TO RELEASE WATER INTO THE RECONSTRUCTED CHANNEL.
   - 9.5. PLUGS SHOULD REMAIN IN PLACE UNTIL PERMANENT STABILIZATION OF THE NEW WATER COURSE IS COMPLETED. REMOVAL OF PLUGS SHOULD ONLY BE PERFORMED FOLLOWING ACCEPTANCE OF ALL STABILIZATION WORK BY THE ENGINEER.
10. THE DETAILS PROVIDED DEPICT TYPICAL TEMPORARY DIVERSION CHANNELS. THE DETAILS SHOWN ARE OPTIONAL RECOMMENDATIONS, BUT NOT MANDATORY.
11. THE CONTRACTOR MAY PROPOSE THE USE OF OTHER DIVERSION OPTIONS SUCH AS PIPING, PUMPING OR STAGED CONSTRUCTION.
12. WITH THE EXCEPTION OF SILT FENCE, ALL ITEMS AND WORK ASSOCIATED WITH STREAM DIVERSIONS ARE SUBSIDIARY TO THE CULVERT CONSTRUCTION AND SHALL NOT BE PAID DIRECTLY.



SECTION A-A

TEMPORARY DIVERSION CHANNEL
WITH GEOTEXTILE FABRIC OR PLASTIC LINING



TEMPORARY CULVERT
USED DURING CONSTRUCTION

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

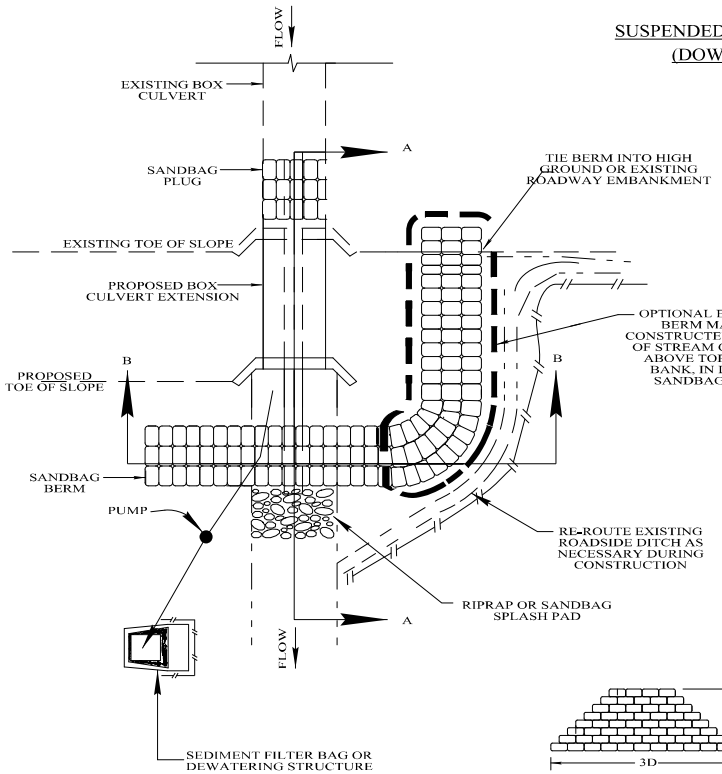
ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

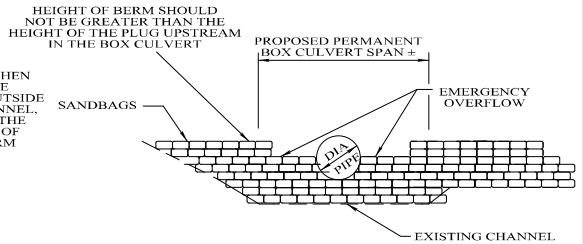
REVISIONS:
1. Updated "SECTION A-A" and deleted original Note No.'s 9 & 10 then renumbered on 8-24-2011 by J.F.T.

Bureau Std Engr:	D.J.W.
DRAWN BY:	
DATE DRAWN:	2006
REVISED DATE:	8-24-2011

DESIGN BUREAU SPECIAL DRAWING	SPECIAL DRAWING NO	INDEX NO
TEMPORARY STREAM DIVERSION	ESC-505	66541

SUSPENDED PIPE DIVERSION (DOWNSTREAM)





SECTION B-B

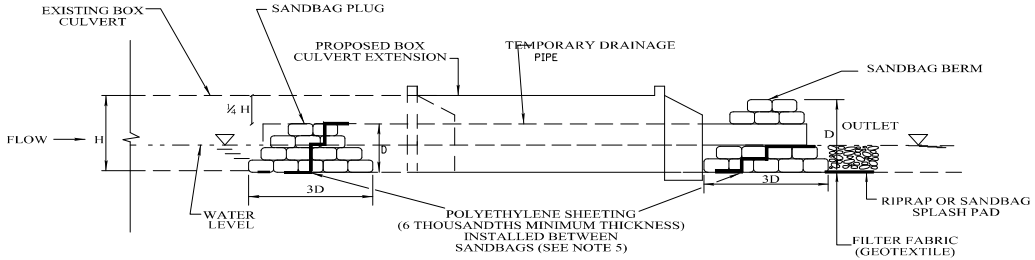
SAND BAG PLUG & BERM CROSS SECTION
(SEE NOTE 5)

MAXIMUM SPAN FOR PIPE SUPPORTS, FEET

DIAMETER OF PIPE (IN)	STEEL THICKNESS (IN)				
	0.064	0.079	0.109	0.138	0.168
	2" X ½" CORRUGATION				
24	13'	15'	20'		
36	12'	15'	20'	25'	
48	11'	14'	19'	25'	30'
60		14'	19'	24'	29'
72			18'	24'	29'
	5" X 1" or 3" X 1" CORRUGATION				
36	9'	11'			
48	9'	11'	15'		
60	8'	10'	14'	18'	
72	8'	10'	14'	18'	22'

FOR PIPE SIZES NOT SHOWN, REFER TO NEXT LARGER SIZE

PLAN VIEW



SECTION A-A

SUSPENDED PIPE DIVERSION (DOWNSTREAM) GENERAL NOTES

1. SUSPENDED PIPE DIVERSIONS MAY BE USED TO ALLOW BOX CULVERT EXTENSIONS TO BE CONSTRUCTED WHILE SEPARATED FROM FLOWING WATER, IN THE DRY, THUS REDUCING SEDIMENTATION. FLEXIBLE PIPE DIVERSION MAY BE UTILIZED ON STREAMS WITH INTERMITTANT FLOW WHERE THE DURATION OF CONSTRUCTION IS EXPECTED TO BE BRIEF.
2. THE CONTRACTOR SHALL DETERMINE THE SIZE OF THE SUSPENDED PIPE WHICH SHALL BE DESIGNED USING A 2-YEAR STORM FREQUENCY FLOW RATE.
3. SUSPENDED PIPE DIVERSIONS MAY BE USED WHERE ADVERSE IMPACTS WILL NOT BE CAUSED BY WATER PONDED UPSTREAM OF THE PIPE.
4. THE SANDBAG PLUG AT THE DOWNSTREAM END OF THE SUSPENDED PIPE DIVERSIONS SHOULD BE CONSTRUCTED TO A HEIGHT EQUAL TO THREE QUARTERS OF THE RISE OF THE BOX CULVERT.
5. POLYETHYLENE SHEETING (6 THOUSANDTHS MINIMUM THICKNESS) SHALL BE PLACED INSIDE THE SANDBAG PLUG IN THE BOX CULVERT AND THE SANDBAG BERM WITHIN THE CHANNEL IN ORDER TO PROVIDE THE BEST POSSIBLE SEAL. SANDBAGS ON THE DOWNSTREAM SIDE OF THE SHEETING SHOULD BE PLACED FIRST, AND THEN SHEETING PLACED ON THESE BAGS. AS MUCH AS POSSIBLE, THE SHEETING SHOULD BE FITTED AROUND THE PIPE. THE REMAINING SANDBAGS WOULD THEN BE PLACED ON THE SHEETING. WHERE MULTIPLE SHEETS ARE USED, THEY SHOULD OVERLAP A MINIMUM OF 18 INCHES.
6. THE PROPOSED CULVERT CONSTRUCTION SHALL BE SEALED FROM THE EXISTING STREAM BY MEANS OF A SANDBAG BERM WHICH WILL BE TIED INTO EITHER HIGH GROUND BESIDE THE CHANNEL OR THE EXISTING ROADWAY EMBANKMENT, UP TO THE 2-YEAR FLOOD LEVEL.
7. THE TEMPORARY DRAINAGE PIPE WILL BE SUPPORTED AT ALL JOINTS AND AT INTERVALS NOT TO EXCEED THE VALUES SPECIFIED IN THE TABLE "MAXIMUM SPAN FOR PIPE SUPPORTS." SUPPORTS MAY CONSIST OF SANDBAGS, CONCRETE BLOCKS, WOODEN FRAMES, OR ANY OTHER MATERIAL SUFFICIENT TO SUPPORT THE WEIGHT OF THE PIPE WHEN IT IS FLOWING FULL. SUPPORTS AT JOINT SHALL BE A MINIMUM OF 18 INCHES IN LENGTH, ALONG THE TEMPORARY DRAINAGE PIPE AND CENTERED ON THE JOINT. SUPPORTS SHOULD "CRADLE" THE TEMPORARY DRAINAGE PIPE TO ENSURE THAT IT WILL NOT ROLL DURING CONSTRUCTION OF THE BOX CULVERT.
8. ALL PIPE JOINTS SHALL BE PROPERLY BANDED OR OTHERWISE PROVIDED WITH A REASONABLE SEAL AGAINST LEAKAGE.
9. FOR DETAILS OF THE OPTIONAL FLEXIBLE PIPE DIVERSION USING PUMPS, SEE SUSPENDED PIPE DIVERSION (UPSTREAM) DETAIL.
10. CONSTRUCTION SHALL PROCEED AS FOLLOWS:
    - INSTALL TEMPORARY DRAINAGE PIPE ON ITS SUPPORTS INSIDE THE CULVERT TO BE EXTENDED.
    - CONSTRUCT THE SANDBAG BERM AT THE UPSTREAM END OF THE SUSPENDED PIPE DIVERSIONS.
    - CONSTRUCT THE SANDBAG PLUG AT THE DOWNSTREAM END OF THE SUSPENDED PIPE DIVERSIONS.
    - ONCE THE BOX CULVERT EXTENSION HAS BEEN COMPLETED, REMOVE THE DOWNSTREAM SANDBAG STRUCTURE, EXCEPT THOSE BAGS NEEDED TO SUPPORT THE END OF THE PIPE. THE UPSTREAM SANDBAG STRUCTURE SHOULD THEN BE REMOVED GRADUALLY, IN ORDER TO ALLOW THE UPSTREAM WATER LEVEL TO DRAWDOWN AT A SAFE RATE.
    - REMOVE THE TEMPORARY DRAINAGE PIPE, SUPPORTS AND ANY REMAINING SANDBAGS.
11. TEMPORARY DRAINAGE PIPE, SANDBAG PLUGS, BERMS, AND SUPPORTS SHALL BE INSPECTED WEEKLY OR AFTER EVERY RAIN EVENT. ANY NEEDED REPAIRS SHALL BE DONE IMMEDIATELY. ANY DEBRIS WHICH HAS ACCUMULATED AT THE INLET OF THE SUSPENDED PIPE DIVERSIONS SHALL BE IMMEDIATELY REMOVED.
12. LOCATIONS OR TYPES OF TEMPORARY DIVERSION WILL NOT BE SHOWN ON THE PLANS AS REQUIRED ITEMS OF WORK NOR WILL REQUIREMENTS FOR MATERIALS OR CONSTRUCTION BE FOUND IN THE STANDARD SPECIFICATIONS.
13. THE DETAILS PROVIDED DEPICT TYPICAL SUSPENDED PIPE DIVERSION (UPSTREAM). THE DETAILS SHOWN ARE OPTIONAL RECOMMENDATIONS, BUT ARE NOT MANDATORY.
14. THE CONTRACTOR MAY PROPOSE THE USE OF OTHER DIVERSION OPTIONS.
15. IT IS THE CONTRACTOR'S CHOICE WHICH METHOD OF DIVERSION THEY USE. ALL COST SHALL BE BORNE BY THE CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE QUALITY OF THE WATERS ORIGINATING OFF OF THE RIGHT-OF-WAY AND ENTERING THE PROJECT SITE ARE NOT TO BE DIMINISHED AS THE WATER FLOWS THROUGH AND LEAVES THE SITE.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

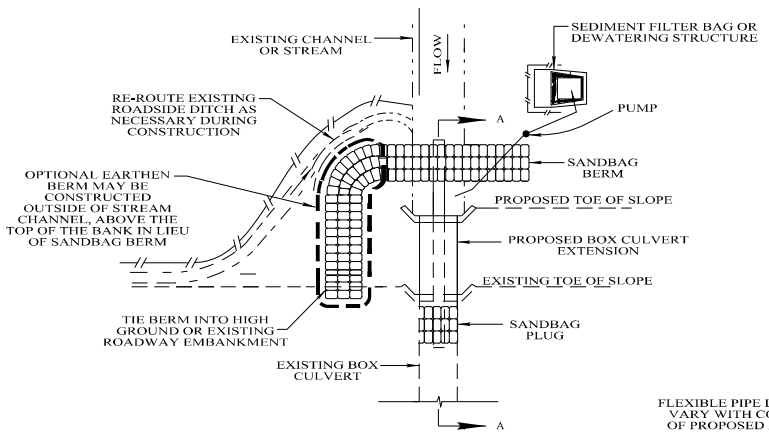
ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Added to CADD on 3-29-2010 by J.F.T.
2. Corrrected Silt Fence linestyle on 8-24-2011 by J.F.T.
3. Updated Special Drawing No. from ESC-506 (SHEET 1 OF 2) to ESC-506-1 on 11-1-2016 by J.F.T. & J.M.M.

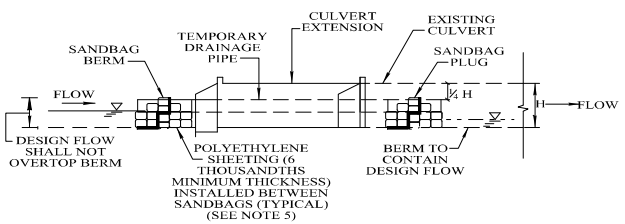
Bureau Std Engr:	D.J.W.
DRAWN BY:	
DATE DRAWN:	
REVISED DATE:	11-1-2016

DESIGN BUREAU SPECIAL DRAWING	SPECIAL DRAWING NO	INDEX NO
SUSPENDED PIPE DIVERSION (DOWNSTREAM)	ESC-506-1	66544

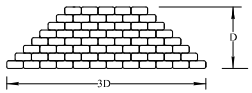
SUSPENDED PIPE DIVERSION (UPSTREAM)



PLAN VIEW



SECTION A-A



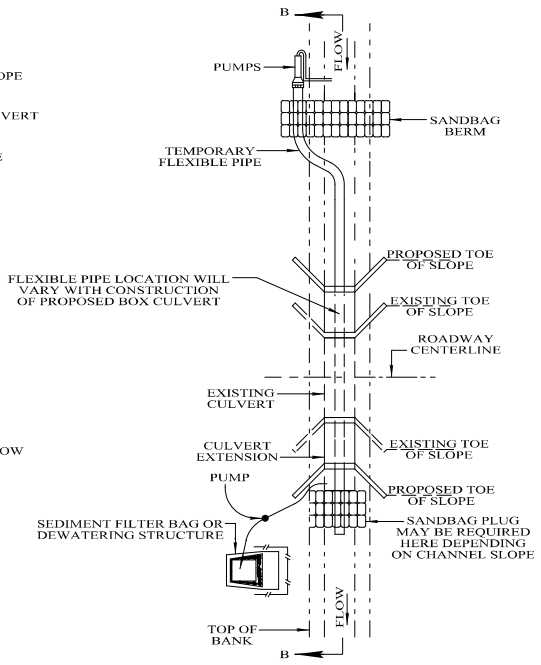
SAND BAG PLUG & BERM CROSS SECTION

(SEE NOTE 5)

MAXIMUM SPAN FOR PIPE SUPPORTS, FEET					
DIAMETER OF PIPE (IN)	STEEL THICKNESS (IN)				
	0.064	0.079	0.109	0.138	0.168
	2" X ½" CORRUGATION				
24	13'	15'	20'		
36	12'	13'	20'	25'	
48	11'	14'	19'	25'	30'
60		14'	19'	24'	29'
72			18'	24'	29'
	5" X 1" or 3" X 1" CORRUGATION				
36	9'	11'			
48	9'	11'	15'		
60	8'	10'	14'	18'	
72	8'	10'	14'	18'	22'

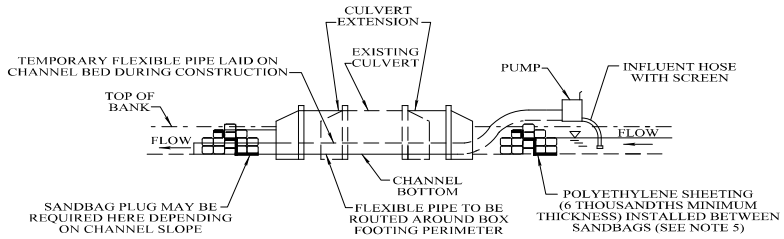
FOR PIPE SIZES NOT SHOWN, REFER TO NEXT LARGER SIZE

FLEXIBLE PIPE DIVERSION (OPTIONAL)



(SHOWN WITH UPSTREAM & DOWNSTREAM EXTENSIONS)

PLAN VIEW



SECTION B-B

SUSPENDED PIPE DIVERSION (UPSTREAM) GENERAL NOTES

1. SUSPENDED PIPE DIVERSIONS MAY BE USED TO ALLOW BOX CULVERT EXTENSIONS TO BE CONSTRUCTED WHILE SEPARATED FROM FLOWING WATER, IN THE DRY, THUS REDUCING SEDIMENTATION. FLEXIBLE PIPE DIVERSION MAY BE UTILIZED ON STREAMS WITH INTERMITTANT FLOW WHERE THE DURATION OF CONSTRUCTION IS EXPECTED TO BE BRIEF.
2. THE CONTRACTOR SHALL DETERMINE THE SIZE OF THE SUSPENDED PIPE WHICH SHALL BE DESIGNED USING A 2-YEAR STORM FREQUENCY FLOW RATE.
3. SUSPENDED PIPE DIVERSIONS MAY BE USED WHERE ADVERSE IMPACTS WILL NOT BE CAUSED BY WATER PONDED UPSTREAM OF THE PIPE.
4. THE SANDBAG PLUG AT THE DOWNSTREAM END OF THE SUSPENDED PIPE DIVERSIONS SHOULD BE CONSTRUCTED TO A HEIGHT EQUAL TO THREE QUARTERS OF THE RISE OF THE BOX CULVERT.
5. POLYETHYLENE SHEETING (6 THOUSANDTHS MINIMUM THICKNESS) SHALL BE PLACED INSIDE THE SANDBAG BERM IN THE CHANNEL AND THE SANDBAG PLUG IN THE BOX CULVERT IN ORDER TO PROVIDE THE BEST POSSIBLE SEAL. SANDBAGS ON THE DOWNSTREAM SIDE OF THE SHEETING SHOULD BE PLACED FIRST, AND THEN SHEETING PLACED ON THESE BAGS. AS MUCH AS POSSIBLE, THE SHEETING SHOULD BE FITTED AROUND THE PIPE. THE REMAINING SANDBAGS WOULD THEN BE PLACED ON THE SHEETING, WHERE MULTIPLE SHEETS ARE USED, THEY SHOULD OVERLAP A MINIMUM OF 18 INCHES.
6. THE PROPOSED CULVERT CONSTRUCTION SHALL BE SEALED FROM THE EXISTING STREAM BY MEANS OF A SANDBAG BERM WHICH WILL BE TIED INTO EITHER HIGH GROUND BESIDE THE CHANNEL OR THE EXISTING ROADWAY EMBANKMENT, UP TO THE 2-YEAR FLOOD LEVEL.
7. THE TEMPORARY DRAINAGE PIPE WILL BE SUPPORTED AT ALL JOINTS AND AT INTERVALS NOT TO EXCEED THE VALUES SPECIFIED IN THE TABLE "MAXIMUM SPAN FOR PIPE SUPPORTS." SUPPORTS MAY CONSIST OF SANDBAGS, CONCRETE BLOCKS, WOODEN FRAMES, OR ANY OTHER MATERIAL SUFFICIENT TO SUPPORT THE WEIGHT OF THE PIPE WHEN IT IS FLOWING FULL. SUPPORTS AT JOINTS SHALL BE A MINIMUM OF 18 INCHES IN LENGTH, ALONG THE TEMPORARY DRAINAGE PIPE AND CENTERED ON THE JOINT. SUPPORTS SHOULD "CRADLE" THE TEMPORARY DRAINAGE PIPE TO ENSURE THAT IT WILL NOT ROLL DURING CONSTRUCTION OF THE BOX CULVERT.
8. ALL PIPE JOINTS SHALL BE PROPERLY BANDED OR OTHERWISE PROVIDED WITH A REASONABLE SEAL AGAINST LEAKAGE.
9. CONSTRUCTION SHALL PROCEED AS FOLLOWS:
   * INSTALL TEMPORARY DRAINAGE PIPE ON ITS SUPPORTS INSIDE THE CULVERT TO BE EXTENDED.
   * CONSTRUCT THE SANDBAG BERM AT THE UPSTREAM END OF THE SUSPENDED PIPE DIVERSIONS.
   * CONSTRUCT THE SANDBAG PLUG AT THE DOWNSTREAM END OF THE SUSPENDED PIPE DIVERSIONS.
   * ONCE THE BOX CULVERT EXTENSION HAS BEEN COMPLETED, REMOVE THE DOWNSTREAM SANDBAG STRUCTURE, EXCEPT THOSE BAGS NEEDED TO SUPPORT THE END OF THE PIPE. THE UPSTREAM SANDBAG STRUCTURE SHOULD THEN BE REMOVED GRADUALLY, IN ORDER TO ALLOW THE UPSTREAM WATER LEVEL TO DRAWDOWN AT A SAFE RATE.
   * REMOVE THE TEMPORARY DRAINAGE PIPE, SUPPORTS AND ANY REMAINING SANDBAGS.
10. TEMPORARY DRAINAGE PIPE, SANDBAG PLUGS, BERMS, AND SUPPORTS SHALL BE INSPECTED WEEKLY OR AFTER EVERY RAIN EVENT. ANY NEEDED REPAIRS SHALL BE DONE IMMEDIATELY. ANY DEBRIS WHICH HAS ACCUMULATED AT THE INLET OF THE SUSPENDED PIPE DIVERSIONS SHALL BE IMMEDIATELY REMOVED.
11. LOCATIONS OR TYPES OF TEMPORARY DIVERSION WILL NOT BE SHOWN ON THE PLANS AS REQUIRED ITEMS OF WORK NOR WILL REQUIREMENTS FOR MATERIALS OR CONSTRUCTION BE FOUND IN THE STANDARD SPECIFICATIONS.
12. THE DETAILS PROVIDED DEPICT TYPICAL SUSPENDED PIPE DIVERSION (UPSTREAM). THE DETAILS SHOWN ARE OPTIONAL RECOMMENDATIONS, BUT ARE NOT MANDATORY.
13. THE CONTRACTOR MAY PROPOSE THE USE OF OTHER DIVERSION OPTIONS.
14. IT IS THE CONTRACTOR'S CHOICE WHICH METHOD OF DIVERSION THEY USE. ALL COST SHALL BE BORNE BY THE CONTRACTOR. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE QUALITY OF THE WATERS ORIGINATING OFF OF THE RIGHT-OF-WAY AND ENTERING THE PROJECT SITE ARE NOT TO BE DIMINISHED AS THE WATER FLOWS THROUGH AND LEAVES THE SITE.

NOT TO SCALE

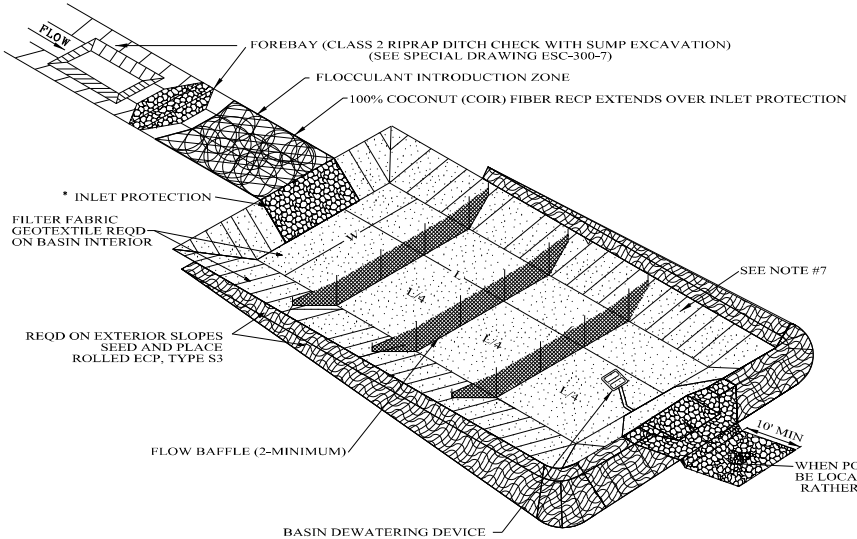
--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Added to CADD on 3-29-2010 by J.F.T.
2. Corrected Silt Fence linestyle on 8-24-2011 by J.F.T.
3. Updated Special Drawing No. from ESC-506 (SHEET 2 OF 2) to ESC-506-2 on 11-1-2016 by J.F.T. & J.M.M.

Bureau Std Engr:	D.J.W.
DRAWN BY:	
DATE DRAWN:	
REVISED DATE:	1-1-2016

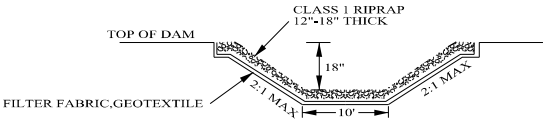
DESIGN BUREAU SPECIAL DRAWING	SPECIAL DRAWING NO	INDEX NO
SUSPENDED PIPE DIVERSION (UPSTREAM)	ESC-506-2	66545



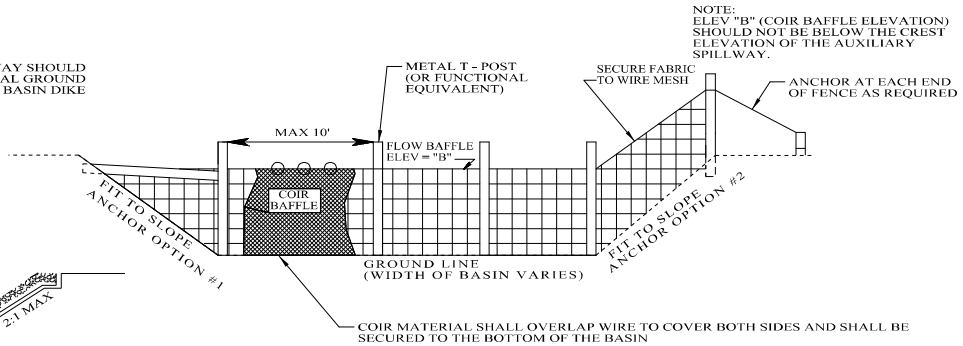
PERSPECTIVE VIEW

NOTES:

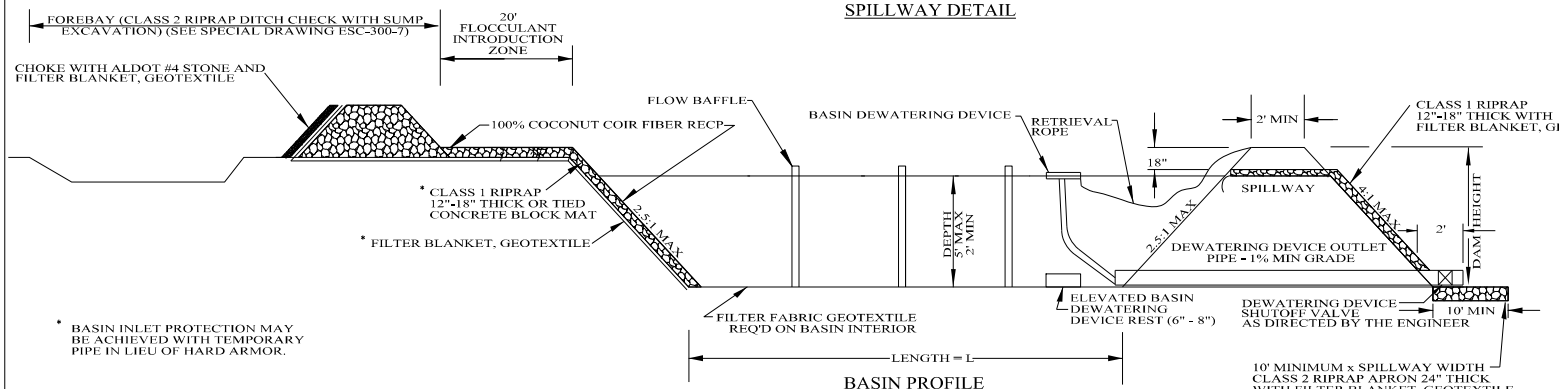
1. INLET AND SPILLWAY LOCATIONS TO BE ADJUSTED TO FIT EXISTING SITE CONTOURS. (BASIN IS NOT NECESSARILY RECTANGULAR SHAPED)
2. BAFFLES SHALL BE CONSTRUCTED OF 100% COCONUT (COIR) FIBER MATERIAL SUPPORTED BETWEEN POSTS WITH A WIRE MESH BACKING AS SHOWN BELOW. ROWS SHALL BE EVENLY SPACED THROUGH THE BASIN.
3. THE FLOCCULANT INTRODUCTION ZONE AND BASIN ENTRY SHALL BE TOPPED WITH 100% COCONUT (COIR) FIBER MATERIAL RECP THAT EXTENDS TO THE TOE OF THE SLOPE. MATERIAL PROPERTIES SHALL MEET THE SAME REQIREMENTS AS GIVEN FOR FLOW BAFFLES.
4. FLOCCULANT SHALL BE PLACED AT THE INLET END OF THE BASIN IN THE FLOCCULANT INTRODUCTION ZONE. FLOCCULANT CONDITION SHALL BE MONITORED AND SHALL BE REPLACED WHEN IT NO LONGER APPEARS TO BE EFFECTIVE.
5. DO NOT CONSTRUCT TEMPORARY SEDIMENTATION BASIN IN FLOODWAY.
6. TEMPORARY SEDIMENT BASINS SHALL BE CONSTRUCTED UTILIZING EXISTING GROUND SURFACE WHERE POSSIBLE TO MINIMIZED DISTURBANCE.
7. SIDE SLOPES SHOULD BE 2.5:1 OR FLATTER.



SPILLWAY DETAIL



FLOW BAFFLE DETAIL



* BASIN INLET PROTECTION MAY BE ACHIEVED WITH TEMPORARY PIPE IN LIEU OF HARD ARMOR.

BASIN PROFILE
ALONG THE CENTERLINE

NOT TO SCALE

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Changed hatching to show change in material and revised text in "PERSPECTIVE VIEW" on 9-26-2012 by J.F.T.
2. Revised "FLOW BAFFLE DETAIL" on 10-27-2014 by J.F.T.
3. Correct sheet reference "TSC-300, sheet 7 of 8" to "TSC-306-7" on 12-6-2016 by L.V.S.
4. Added ceramic fiber cutlass - Added new Note 3 and renumbered others accordingly on 9-10-2020 by D.J.W.
5. Changed "SPILLWAY DETAIL" slopes from 3:1 to 2.5:1 MAX and changed slopes on "BASIN PROFILE ALONG THE CENTERLINE" from 3:1 to 2.5:1 MAX and 4:1 to 4:1 MAX. Added Note 7 concerning "Side Slopes" on 7-12-2022 by J.F.T.
6. Inserted "COIR" between "COCONUT FIBER" and added "EXTENDS OVER INLET PROTECTION". Revised "BASIN PROFILE ALONG THE CENTERLINE". Extended the text of 12"-18" THICK, and added "100% COCONUT COIR FIBER RECP" to drawing on 08-29-2025 by J.F.T.

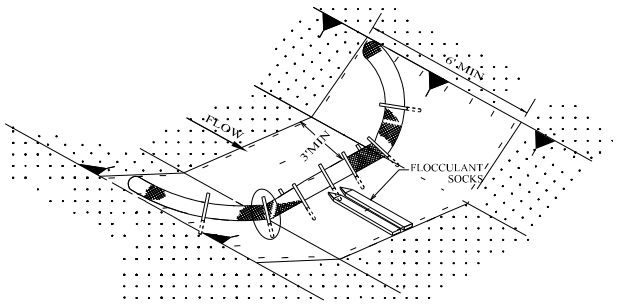
Bureau Std Engr:	G.L.D.
DRAWN BY:	
DATE DRAWN:	1-15-2009
REVISED DATE:	8-29-2025

DESIGN BUREAU SPECIAL DRAWING

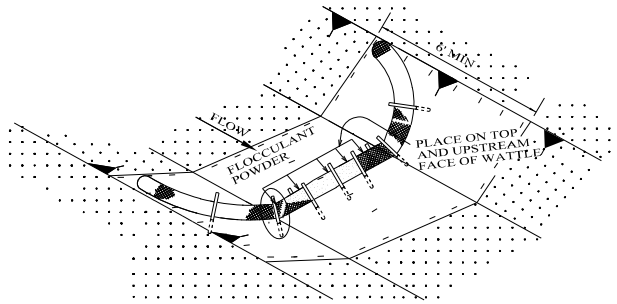
TEMPORARY SEDIMENTATION BASIN

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

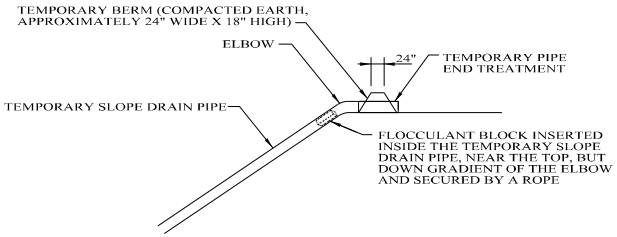
SPECIAL DRAWING NO	INDEX NO
ESC-507	66548



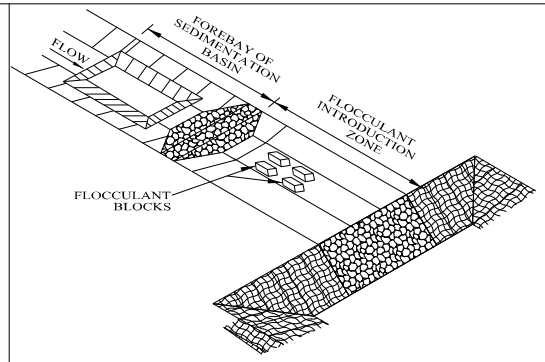
FLOCCULANT SOCK USE
WITH WATTLE DITCH CHECK
(SEE SPECIAL DRAWING ESC-300-4)



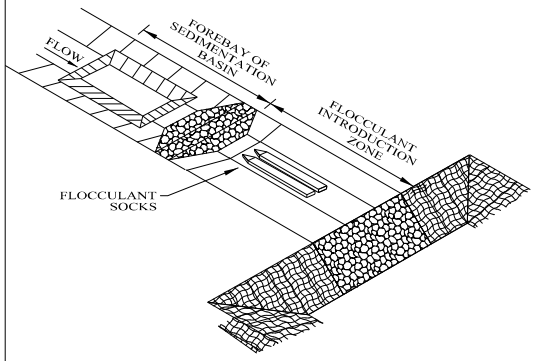
FLOCCULANT POWDER USE
WITH WATTLE DITCH CHECK
(SEE SPECIAL DRAWING ESC-300-4)



FLOCCULANT BLOCK USE
WITH TEMPORARY SLOPE DRAIN
(SEE SPECIAL DRAWING ESC-200-2)



FLOCCULANT BLOCK USE
WITH SEDIMENTATION BASIN
(SEE SPECIAL DRAWING ESC-507)



FLOCCULANT SOCK USE
WITH SEDIMENTATION BASIN
(SEE SPECIAL DRAWING ESC-507)

NOTES:
1. AN ALDOT LIST OF APPROVED FLOCCULANTS CAN BE FOUND IN THE MSDSAR MANUAL LIST II-24 "TEMPORARY EROSION AND SEDIMENT CONTROL PRODUCTS."
2. FLOCCULANTS ARE SOIL SPECIFIC AND MUST BE SELECTED BASED ON SOIL AND RUNOFF TESTING.
3. HEAVY SEDIMENT AND SAND SHOULD BE REMOVED PRIOR TO THE LOCATION OF FLOCCULANT APPLICATION.
4. PASSIVE DOSING OF FLOCCULANTS REQUIRES FLOWING WATER WITH A MODERATE VELOCITY.
5. FLOCCULANTS REQUIRE AN INITIAL PERIOD OF MIXING/AGITATION FOLLOWED BY A PERIOD OF LOW VELOCITY TO ALLOW THE SETTLING OF PARTICLES.
6. SEDIMENT CONTROL MEASURES MUST BE UTILIZED TO CAPTURE THE FLOCCULATED MATERIAL AND PREVENT RE-SUSPENSION PRIOR TO DISCHARGE.
7. FLOCCULANT SHOULD NEVER BE APPLIED DIRECTLY TO LIVE STREAMS OR WATERS OF THE STATE.
8. FLOCCULANT BLOCKS CAN DRY OUT PREVENTING DISSOLUTION, BLOCKS MUST BE PROTECTED FROM THE SUN AND SHOULD REMAIN HYDRATED IF POSSIBLE.
9. FLOCCULANT SOCKS SHALL BE INSTALLED IN THE CORRECT ORDER AND ORIENTATION AS PER MANUFACTURER'S INSTRUCTIONS. FLOCCULANT SOCKS WILL FLATTEN WHEN EMPTY INDICATING THE NEED FOR REPLACEMENT.
10. POWDER FORMS OF FLOCCULANT TYPICALLY MUST BE REAPPLIED AFTER EACH RAIN EVENT.
11. FLOCCULANTS SHOWN ON DRAWINGS ARE FOR ILLUSTRATIVE PURPOSES TO INDICATE LOCATION OF APPLICATION. DOSING SHALL BE APPLIED AS PER MANUFACTURER'S RECOMMENDATIONS.

NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Revised Sheet Numbers of "FLOCCULANT SOCK USE WITH WATTLE DITCH CHECK" and "FLOCCULANT POWDER USE WITH WATTLE DITCH CHECK" on 10-20-2014 by J.P.
2. Corrected Sheet References from "ECS-300, Sheet 4 of 8" & "...Sheet 2 of 8" to "ESC-300-4" & "ESC-300-2" on 12-6-2016 by L.V.S.
3. Modified Note 9 and added Note 11. Deleted quantity requirements for all flocculant items on 8-31-2020 by D.J.W.

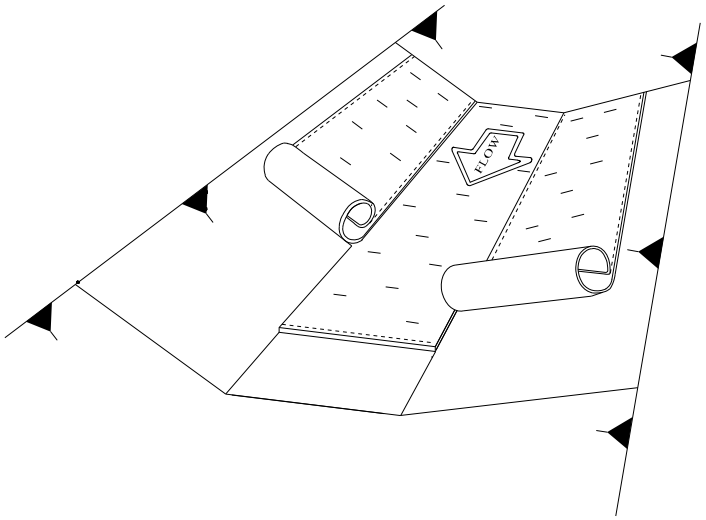
Bureau Std Engr:	D.J.W.
DRAWN BY:	
DATE DRAWN:	9-24-2012
REVISED DATE:	8-31-2020

DESIGN BUREAU SPECIAL DRAWING
FLOCCULANT USAGE GUIDE

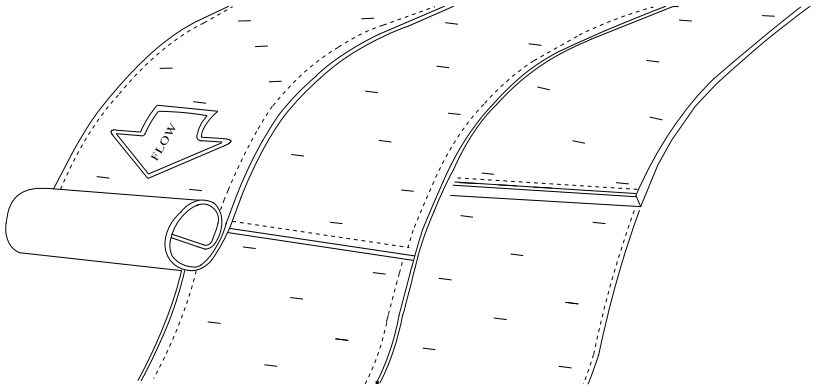
SPECIAL DRAWING NO
ESC-508

INDEX NO
67201

CHANNEL INSTALLATION DETAIL



SLOPE INSTALLATION DETAIL



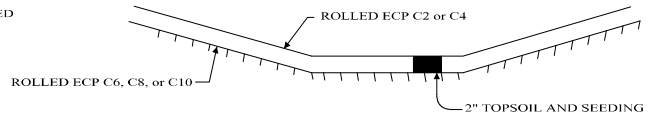
NOTES:

1. ROLLED EROSION CONTROL PRODUCTS SHALL BE INSTALLED PARALLEL TO THE DIRECTION OF FLOW. THERE SHALL BE AN ANCHOR TRENCH AT THE UPSTREAM EDGE OF THE INSTALLATION. UPSTREAM RECPs SHALL OVERLAP ANY DOWNSTREAM RECPs. ADJACENT RECPs SHALL ALSO BE OVERLAPPED.
2. STAPLES SHALL BE PLACED ON OVERLAPS, AT THE TOE OF THE RECP, AND THROUGHOUT THE RECP INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMEDATIONS TO ENSURE THE RECP IS IN CONTACT WITH THE UNDERLYING SOIL.
3. HYDRAULIC EROSION CONTROL PRODUCTS SHALL BE INSTALLED BY SPRAYING IN OPPOSING DIRECTIONS TO PROVIDE A SOLID BLANKET OF PRODUCT. HECPs SHALL BE APPLIED BY EQUIPMENT AND AT A RATE THAT MEETS THE RECOMMENDATIONS OF THE PRODUCT MANUFACTURER SPECIFIC TO THE SLOPE.
4. HYDRAULIC EROSION CONTROL PRODUCTS SHOULD NOT BE INSTALLED IN AREAS SUBJECT TO CHANNELIZED FLOW OR AREAS HAVING A POTENTIAL TO FLOOD DURING A LOCAL 2 YEAR, 24 HOUR STORM EVENT.
5. RECP TYPE C2 AND C4 ARE TO BE PLACED ON TOP OF SEEDING. RECP TYPE C6, C8 AND C10 ARE TO BE PLACED BELOW THE TOPSOIL AND SEEDING. THE TOPSOIL AND SEEDING MUST BE COVERED BY EITHER SOD OR RECP TYPE C2 OR C4 (SEE OPTIONS A AND B). ONLY USE OPTION A IF WATER CAN BE KEPT OUT OF THE CHANNEL UNTIL VEGETATED. IF NOT, USE OPTION B.
6. SEE ALDOT LIST II-11 FOR APPROVED ROLLED AND HYDRAULIC EROSION CONTROL PRODUCTS.

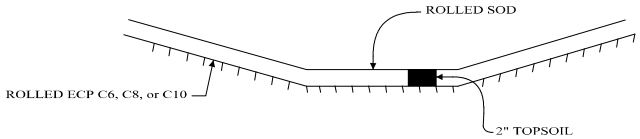
CROSS SECTION

OPTION A (SEE NOTE 5)

NOTE:
ONLY TO BE USED WHERE FLOW CAN BE DIVERTED UNTIL VEGETATION HAS BEEN ESTABLISHED



OPTION B (SEE NOTE 5)



NOT TO SCALE

--SPECIFICATIONS--
CURRENT ALABAMA DEPARTMENT OF TRANSPORTATION

ALABAMA DEPARTMENT OF TRANSPORTATION
1409 COLISEUM BOULEVARD
MONTGOMERY, AL 36130-3050

REVISIONS:
1. Added in CADD on 10-21-2014 by J.F.T.

Bureau Std Engr: D.J.W.
DRAWN BY: J.F.T.
DATE DRAWN: 10-17-2014
REVISED DATE: 10-21-2014

DESIGN BUREAU SPECIAL DRAWING

DETAILS OF ROLLED AND HYDRAULIC EROSION CONTROL PRODUCT INSTALLATION

SPECIAL DRAWING NO	INDEX NO
ESC-509	65901

ALDOT APPROVED PRODUCTS

Important Notes for Inspecting Approved Products:

- Be sure that the product name matches what is shown on the approved product list.
  Product names are extremely similar.
  Some products are not approved for use on ALDOT projects.
- The Contractor may select from the approved lists that were in effect at the time the project was bid.
  The Contractor may also select from the most current approved lists.
  Archived approved product lists are on the Environmental Construction Section's Intranet Webpage.

List II-11 Rolled and Hydraulic Erosion Control Products
(Specification Section 659)

EROSION CONTROL PRODUCTS			
Product Application	ECP Type	Maximum Slope (H:V)	Maximum Anticipated Channel Shear Stress[1] (Pounds per Square Foot)
Slope	S4	4:1	-
	S3	3:1	-
	S2	2:1	-
	S1	1:1	-
Channel	C2	-	2.0
	C4	-	4.0
	C6	-	6.0
	C8	-	8.0
	C10	-	10.0

NOTE 1 (in the table of ECPs) : The approximate shear stress that an ECP would be exposed to in a channel may be calculated from the formula:

Approximate Shear Stress = $g \times D \times S_b$
g = Unit weight of water: 62.4 pounds per cubic foot;
D = maximum expected depth of water in the channel (feet);
S_b = slope of bed in (feet per foot).

List II-20 Tackifiers, Mulch Control Netting and Hydraulic Mulch Products
(Specification Section 656)

List II-24 Temporary Erosion and Sediment Control Products
(Specification Section 665)

- Flow Baffles
- Turbidimeters
- Manufactured Inlet Protection Devices
- Wattles
- Flocculants
- Basin Dewatering Devices
- Tied Concrete Block
- (for Silt Fence, see List II-3 - Geotextiles)

ROLLED and HYDRAULIC EROSION CONTROL PRODUCTS*

SLOPE APPLICATIONS

List II-11.1.1 - Type S4 Slope Applications

PEB #	Product Name	Approved Manufacturer and Plant Location	Manufacturer's Anticipated Functional Longevity (months)	Tentative Expiration Date	BABA Compliant**
Hydraulic Erosion Control Products					
Rolled Erosion Control Products					
4864	ECB S31 (Model S31)	Erosion Control Blanket - Manitoba, Canada	12	7/31/2026	Y4
2191	P42	Erosion Control Blanket - Manitoba, Canada	PERM	1/31/2028	Y2

List II-11.1.2 - Type S3 Slope Applications

PEB #	Product Name	Approved Manufacturer and Plant Location	Manufacturer's Anticipated Functional Longevity (months)	Tentative Expiration Date	BABA Compliant**
Hydraulic Erosion Control Products					
3018	ProMatrix	Profile Products - Conover, NC	12	1/31/2027	Y4
Rolled Erosion Control Products					
2688	AEC Premier Straw SN (White Net)	American Excelsior - Norwalk, OH	3	1/31/2027	Y4
2076	Curlex I CL	American Excelsior - Rice Lake, WI	3	7/31/2027	Y4
5434	Curlex NetFree (Model No. 048.1000)	American Excelsior - Rice Lake, WI	3	7/31/2027	Y4
2031	Excel SR-1 All Natural	Western Green - Evansville, IN	3	1/31/2027	Y4
5707	WINFAB S2	Willacoochee Industrial Fabrics, Inc.	3	7/31/2027	Y4
2688	AEC Premier Straw SN (Green Net)	American Excelsior - Norwalk, OH	12	1/31/2027	Y4
4865	ECB S32 (Model S32)	Erosion Control Blanket - Manitoba, Canada	12	7/31/2026	Y4
3095	ETRS-1	Erosion Tech - Belleville, PA	12	7/31/2026	Y4
3096/4161	ETRS-2	Erosion Tech - Belleville, PA	12	7/31/2026	Y4
2274	S150	North American Green - Poseyville, IN	12	7/31/2027	Y4
4866	ECB SC32 (Model SC32)	Erosion Control Blanket - Manitoba, Canada	24	1/31/2028	Y4

List II-11.1.3 - Type S2 Slope Applications

PEB #	Product Name	Approved Manufacturer and Plant Location	Manufacturer's Anticipated Functional Longevity (months)	Tentative Expiration Date	BABA Compliant**
Hydraulic Erosion Control Products					
3025	HydroStraw Bonded Fiber Matrix	HydroStraw, LLC - Rockford, WA	12	1/31/2027	Y4
Rolled Erosion Control Products					
2689	AEC Premier Straw DN (White Net)	American Excelsior - Norwalk, OH	3	1/31/2027	Y4
2689	AEC Premier Straw DN (Green Net)	American Excelsior - Norwalk, OH	12	1/31/2027	Y4
	Curlex I	American Excelsior - Rice Lake, WI	12	1/31/2028	Y4
	Curlex I FibreNet	American Excelsior - Rice Lake, WI	12	1/31/2028	Y4
2077	Curlex II CL	American Excelsior - Rice Lake, WI	12	7/31/2027	Y4
4100	S75	North American Green - Poseyville, IN	12	7/31/2027	Y4
1745	AEC Premier Straw/Coconut	American Excelsior - Florence, AL	24	1/31/2028	Y4
1745	AEC Premier Straw/Coconut	American Excelsior - Norwalk, OH	24	1/31/2027	Y4
	AEC Premier Coconut	American Excelsior - Florence, AL	36	7/31/2027	Y4
4867	ECB C32 (Model C32)	Erosion Control Blanket - Manitoba, Canada	36	1/31/2027	Y4
1707	Excel PP5-12	Western Green - Macon, GA	PERM	7/31/2027	Y3

**Visit http://www.dot.state.al.us/conweb/ATC.html for a list of Manufacturer's Safety Data Sheets and Dosing Recommendations for Treatment Chemicals found in Hydraulic Erosion Control Products.*

**Rolled and Hydraulic Erosion Control Products are classified at the manufacturer's highest allowable use for slope and/or channel application as specified in Section 659, Erosion Control Products, of the Alabama Department of Transportation, Standard Specifications for Highway Construction, 2026 Edition.*

** Build America, Buy America Act (BABA) Compliant Coding

Y = Yes. Item is BABA compliant.

Y1 = Iron/Steel, Y2 = Manufactured Product, Y3 = Construction Material, Y4 = Exempt

N = No. Item is not BABA compliant for federal funded projects.

N1 = Does not meet October 1, 2025 'final assembly requirement' deadline (but can be used on non-federal funded projects)

N2 = Complies with 'final assembly requirement' but does not meet October 1, 2026, '55% rule (but can be used on non-federal funded projects)

- Refer to Federal Register Buy America Requirements for Manufactured Products for 'final assembly requirement' and '55% Rule':
https://www.federalregister.gov/documents/2025/01/14/2024-31350/buy-america-requirements-for-manufactured-products
- Refer to the link below for the Procedures for Evaluation and Maintenance for this list for maintenance requirements and removal conditions:
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SLOPE APPLICATIONS

List II-11.1.3 - Type S2 Slope Applications

PEB #	Product Name	Approved Manufacturer and Plant Location	Manufacturer's Anticipated Functional Longevity (months)	Tentative Expiration Date	BABA Compliant**
Rolled Erosion Control Products *(Continued from Previous Page)*					
4100	S75	North American Green - Poseyville, IN	12	7/31/2027	Y4
1745	AEC Premier Straw/Coconut	American Excelsior - Florence, AL	24	1/31/2028	Y4
1745	AEC Premier Straw/Coconut	American Excelsior - Norwalk, OH	24	1/31/2027	Y4
	AEC Premier Coconut	American Excelsior - Florence, AL	36	7/31/2027	Y4
4867	ECB C32 (Model C32)	Erosion Control Blanket - Manitoba, Canada	36	1/31/2027	Y4
1707	Excel PP5-12	Western Green - Macon, GA	PERM	7/31/2027	Y3

List II-11.1.4 - Type S1 Slope Applications

PEB #	Product Name	Approved Manufacturer and Plant Location	Manufacturer's Anticipated Functional Longevity (months)	Tentative Expiration Date	BABA Compliant**
Hydraulic Erosion Control Products					
2580	Bindex BFM	American Excelsior - Floodwood, MN	9	1/31/2027	Y4
2088	EarthGuard Fiber Matrix	LSC Environmental Products, LLC - Hickory, NC	12	1/31/2027	Y4
4249	EcoMatrix	Profile Products, LLC - Conover, NC	12	1/31/2027	Y4
2051	Flexterra HP-FGM	Profile Products, LLC - Conover, NC	18	1/31/2027	Y4
Rolled Erosion Control Products					
2028	Excel CS-3 All Natural	Western Green - Evansville, IN	12	7/31/2027	Y4
4799	SC150BN	North American Green - Poseyville, IN	18	1/31/2028	Y4
	Curlex II	American Excelsior - Rice Lake, WI	24	1/31/2028	Y4
	Curlex II FibreNet	American Excelsior - Rice Lake, WI	24	1/31/2028	Y4
2230	C4000	MKB Company - Deshler, OH	36	7/31/2026	Y4
	Curlex III	American Excelsior - Rice Lake, WI	36	1/31/2028	Y4
4160	ETPP-10	Erosion Tech - Belleville, PA	PERM	7/31/2026	N1
1286	Recyclex TRM	American Excelsior - Florence, AL	PERM	1/31/2028	Y2
2078	Recyclex TRM-V	American Excelsior - Florence, AL	PERM	1/31/2027	Y2

See next page for Channel Applications.

**Visit http://www.dot.state.al.us/conweb/ATC.html for a list of Manufacturer's Safety Data Sheets and Dosing Recommendations for Treatment Chemicals found in Hydraulic Erosion Control Products.*

**Rolled and Hydraulic Erosion Control Products are classified at the manufacturer's highest allowable use for slope and/or channel application as specified in Section 659, Erosion Control Products, of the Alabama Department of Transportation, Standard Specifications for Highway Construction, 2026 Edition.*

** Build America, Buy America Act (BABA) Compliant Coding

Y = Yes. Item is BABA compliant.

Y1 = Iron/Steel, Y2 = Manufactured Product, Y3 = Construction Material, Y4 = Exempt

N = No. Item is not BABA compliant for federal funded projects.

N1 = Does not meet October 1, 2025 'final assembly requirement' deadline (but can be used on non-federal funded projects)

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- Refer to Federal Register Buy America Requirements for Manufactured Products for 'final assembly requirement' and '55% Rule':
https://www.federalregister.gov/documents/2025/01/14/2024-31350/buy-america-requirements-for-manufactured-products

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CHANNEL APPLICATIONS

List II-11.2.1 - Type C2 Channel Applications

PEB #	Product Name	Approved Manufacturer and Plant Location	Manufacturer's Anticipated Functional Longevity (months)	Tentative Expiration Date	BABA Compliant**
Rolled Erosion Control Products					
2689	AEC Premier Straw DN (White Net)	American Excelsior - Norwalk, OH	3	1/31/2027	Y4
2076	Curlex I CL	American Excelsior - Rice Lake, WI	3	7/31/2027	Y4
5434	Curlex NetFree (Model No. 048.1000)	American Excelsior - Rice Lake, WI	3	7/31/2027	Y4
5707	WINFAB S2	Willacoochee Industrial Fabrics, Inc.	3	7/31/2027	Y4
2689	AEC Premier Straw DN (Green Net)	American Excelsior - Norwalk, OH	12	1/31/2027	Y4
	Curlex I	American Excelsior - Rice Lake, WI	12	1/31/2028	Y4
	Curlex I FibreNet	American Excelsior - Rice Lake, WI	12	1/31/2028	Y4
2077	Curlex II CL	American Excelsior - Rice Lake, WI	12	7/31/2027	Y4
4865	ECB S32 (Model S32)	Erosion Control Blanket - Manitoba, Canada	12	7/31/2026	Y4
3095	ETRS-1	Erosion Tech - Belleville, PA	12	7/31/2026	Y4
3096/4161	ETRS-2	Erosion Tech - Belleville, PA	12	7/31/2026	Y4
2028	Excel CS-3 All Natural	Western Green - Evansville, IN	12	7/31/2027	Y4
2274	S150	North American Green - Poseyville, IN	12	7/31/2027	Y4
1706	Excel S-2	Western Green - Macon, GA	12	1/31/2027	Y4
4799	SC150BN	North American Green - Poseyville, IN	18	1/31/2028	Y4
1745	AEC Premier Straw/Coconut	American Excelsior - Florence, AL	24	1/31/2028	Y4
1745	AEC Premier Straw/Coconut	American Excelsior - Norwalk, OH	24	1/31/2027	Y4
	Curlex II	American Excelsior - Rice Lake, WI	24	1/31/2028	Y4
	Curlex II FibreNet	American Excelsior - Rice Lake, WI	24	1/31/2028	Y4
4866	ECB SC32 (Model SC32)	Erosion Control Blanket - Manitoba, Canada	24	1/31/2028	Y4
	AEC Premier Coconut	American Excelsior - Florence, AL	36	7/31/2027	Y4
2230	C4000	MKB Company - Deshler, OH	36	7/31/2026	Y4
4867	ECB C32 (Model C32)	Erosion Control Blanket - Manitoba, Canada	36	7/31/2026	Y4

List II-11.2.2 - Type C4 Channel Applications

PEB #	Product Name	Approved Manufacturer and Plant Location	Manufacturer's Anticipated Functional Longevity (months)	Tentative Expiration Date	BABA Compliant**
Rolled Erosion Control Products					
	Curlex III	American Excelsior - Rice Lake, WI	36	1/31/2028	Y4

List II-11.2.3 - Type C8 Channel Applications

PEB #	Product Name	Approved Manufacturer and Plant Location	Manufacturer's Anticipated Functional Longevity (months)	Tentative Expiration Date	BABA Compliant**
Rolled Erosion Control Products					
1937	Curlex Enforcer	American Excelsior - Rice Lake, WI	PERM	7/31/2028	Y2
	P300	North American Green - Poseyville, IN	PERM	1/31/2028	Y3
2078	Recyclex TRM-V	American Excelsior - Florence, AL	PERM	1/31/2027	Y2
2431	WG-PP5-10	Western Green - Bernville, PA	PERM	7/31/2026	Y3

List II-11.2.4 - Type C10 Channel Applications

PEB #	Product Name	Approved Manufacturer and Plant Location	Manufacturer's Anticipated Functional Longevity (months)	Tentative Expiration Date	BABA Compliant**
Rolled Erosion Control Products					
4160	ETPP-10	Erosion Tech - Belleville, PA	PERM	7/31/2026	N1
4433	Excel PP5-10	Western Green - Evansville, IN	PERM	1/31/2027	Y3
1286	Recyclex TRM	American Excelsior - Florence, AL	PERM	1/31/2028	Y2
1513	SC250	Western Green - Evansville, IN	PERM	1/31/2027	Y2
5133	TriNet Curlex (Model No. 073.0600)	American Excelsior - Rice Lake, WI	PERM	7/31/2028	Y2
5136	TriNet Recyclex (Model No. 073.0650)	American Excelsior - Florence, AL	PERM	1/31/2029	Y2
5135	TriNet Straw/Coconut (Model No. 073.0630)	American Excelsior - Florence, AL	PERM	7/31/2028	Y2
2432	WG-ECP-3 (ECP-3)	Western Green - Bernville, PA	PERM	7/31/2026	Y3
2605	WG-ECSC-3 (ECSC-3)	Western Green - Bernville, PA	PERM	7/31/2026	Y2
1707	Excel PP5-12	Western Green - Macon, GA	PERM	7/31/2027	Y3

**Visit http://www.dot.state.al.us/conweb/ATC.html for a list of Manufacturer's Safety Data Sheets and Dosing Recommendations for Treatment Chemicals found in Hydraulic Erosion Control Products.*

**Rolled and Hydraulic Erosion Control Products are classified at the manufacturer's highest allowable use for slope and/or channel application as specified in Section 659, Erosion Control Products, of the Alabama Department of Transportation, Standard Specifications for Highway Construction, 2026 Edition.*

** Build America, Buy America Act (BABA) Compliant Coding

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- Refer to Federal Register Buy America Requirements for Manufactured Products for 'final assembly requirement' and '55% Rule':
https://www.federalregister.gov/documents/2025/01/14/2024-31350/buy-america-requirements-for-manufactured-products

- Refer to the link below for the Procedures for Evaluation and Maintenance for this list for maintenance requirements and removal conditions:
https://www.dot.state.al.us/publications/Materials/PROCS.html

APPROVED MANUFACTURERS AND PLANT LOCATIONS

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4032 Parkway Drive
Florence, AL 35630
715-236-5643 / 715-236-5627 fax

American Excelsior Company
180 Cleveland Road
Norwalk, OH 44857
715-236-5643 / 715-236-5627 fax

American Excelsior Company, by Mat, Inc.
12402 Hwy 2
Floodwood, MN 55736
715-236-5644 / 715-236-5627 fax

American Excelsior Company
831 Pioneer Avenue
Rice Lake, WI 54868
715-236-5643 / 715-236-5627 fax

Enviroscape ECM
22700 SR-613
Oakwood, OH 45873
419-594-3210 / 419-594-3213 fax

Erosion Control Blanket
Box 69
Riverton, Manitoba, Canada, R0C 2R0
970-875-1158 / 204-378-2140 fax

Erosion Tech, LLC
83 Central, S Penn Street
Belleville, PA 17004
478-957-3985

HydroStraw, LLC
22110 State Route 27
Rockford, WA 99030
800-545-1755

LSC Environmental Products, LLC
811 Price Place
Lenoir, NC 28645
800-800-7671

MKB Company
300 S Chesnut Street
Deshler, OH 43516
888-550-1999

North American Green by Western Green
5401 St. Wendel Cynthiana Road
Poseyville, IN 47633
800-772-2040 / 812-963-3799 fax

Profile Products, LLC
219 Simpson Street
Conover, NC 28613
970-481-6932 / 970-776-9772

Profile Products, LLC
1525 Waynesburg Drive SE
Canton, OH 44707
330-452-2630 / 330-452-2644 fax

Western Green
3240 Avondale Mill Road
Macon, GA 32126
970-581-1826/ 303-845-8649 fax

Western Green
4609 Boonville-New Harmony Road
Evansville, IN 47725
970-631-8366/ 303-845-8649 fax

Western Green
443 Bricker Road
Bernville, PA 19506
610-488-8496 / 610-488-8494 fax

Willacoochee Industrial Fabrics, Inc
1 Nashville Mills Road
Nashville, GA 31639
229-771-1942/912-534-5533 fax

**Visit http://www.dot.state.al.us/conweb/ATC.html for a list of Manufacturer's Safety Data Sheets and Dosing Recommendations for Treatment Chemicals found in Hydraulic Erosion Control Products.*

TACKIFIERS, MULCH CONTROL NETTING and HYDRAULIC MULCH PRODUCTS

List II-20.1 - Tackifiers

PEB #	Product Name	Approved Manufacturer	Manufacturer's Anticipated Functional Longevity (months)	Approval Date	BABA Compliant**
	FINN HydroStik	FINN Corporation - Fairfield, OH		7/6/1993	Y4
	Tacking Agent 3	Profile Products, LLC - Buffalo Grove, IL		8/2/1993	Y4
1232	EnviroPam (Granular)	Innovative Turf Solutions - Cincinnati, OH		4/2/2012	Y4
4725	Resinator	Momar, Inc. - Atlanta, GA		2/23/2018	Y4
5070**	APS 700 Series Silt Stop Powder (Model No. 705)	Applied Polymer Systems, Inc. - Woodstock, GA		3/2/2020	Y4
5071**	APS 700 Series Silt Stop Powder (Model No. 707)	Applied Polymer Systems, Inc. - Woodstock, GA		3/2/2020	Y4
5072**	APS 700 Series Silt Stop Powder (Model No. 710)	Applied Polymer Systems, Inc. - Woodstock, GA		3/2/2020	Y4
5073**	APS 700 Series Silt Stop Powder (Model No. 712)	Applied Polymer Systems, Inc. - Woodstock, GA		3/2/2020	Y4
5074**	APS 700 Series Silt Stop Powder (Model No. 730)	Applied Polymer Systems, Inc. - Woodstock, GA		3/2/2020	Y4
5075**	APS 700 Series Silt Stop Powder (Model No. 740)	Applied Polymer Systems, Inc. - Woodstock, GA		3/2/2020	Y4
5069**	APS 700 Series Silt Stop Powder (Model No. 702)	Applied Polymer Systems, Inc. - Woodstock, GA		6/8/2020	Y4

**Soil sample testing required by the manufacturer prior to acquisition and application to ensure correct tackifier is selected.

List II-20.2 - Mulch Control Netting

PEB #	Product Name	Approved Manufacturer	Manufacturer's Anticipated Functional Longevity (months)	Approval Date	BABA Compliant**
	EcoJute	Belton Industries - Norcross, GA	3	2/7/2008	Y4
	GeoJute	Belton Industries - Norcross, GA	12	2/7/2008	Y4
4542	KoirMat 400	Nedia Enterprises, Inc. - Ashburn, VA	24	9/6/2016	Y4
4590	KoirMat 700	Nedia Enterprises, Inc. - Ashburn, VA	24	11/7/2016	Y4

List II-20.3 - Hydraulic Mulch

PEB #	Product Name	Approved Manufacturer	Manufacturer's Anticipated Functional Longevity (months)	Approval Date	BABA Compliant**
2597	EcoFibre Plus Tackifier	Profile Products, LLC - Conover, NC	3	08/01/11	Y4
2596	HydroCover Wood Fiber with Tack	Profile Products, LLC - Conover, NC	3	08/01/11	Y4
2598	Profile Wood with Tackifier Hydraulic Mulch	Profile Products, LLC - Conover, NC	3	08/01/11	Y4
2979	Profile Blend Hydraulic Mulch	Profile Products, LLC - Conover, NC	3	01/07/13	Y4

**Visit https://www.dot.state.al.us/programs/CBMPP.html for a list of Manufacturer's Safety Data Sheets and Dosing Recommendations for Treatment Chemicals found in Tackifiers and Hydraulic Mulch.*

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https://www.federalregister.gov/documents/2025/01/14/2024-31350/buy-america-requirements-for-manufactured-products

- Refer to the link below for the Procedures for Evaluation and Maintenance for this list for maintenance requirements and removal conditions:
https://www.dot.state.al.us/publications/Materials/PROCS.html

APPROVED MANUFACTURERS

Applied Polymer Systems, Inc.
519 Industrial Drive
Woodstock, GA 30189
678-494-5998

Belton Industries, Inc.
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Fairfield, OH 45014
800-543-7166 / 513-874-2914 fax

Finn Corporation
9281 LeSaint Drive
Fairfield, Ohio 45014
513-874-2818/ 513-874-2914 fax

Innovative Turf Solutions
3318 Glenmont Ln.
Cincinnati, OH 45248
513-317-8311

Momar, Inc.
1830 Ellsworth Industrial Drive
Atlanta, GA 30318

Nedia Enterprises, Inc.
44675 Cape Court, Suite 120
Ashburn, VA 20147
571-223-0200

Profile Products, LLC
750 Lake Cook Road, Suite 440
Buffalo Grove, IL 60089
800-508-8681 / 847-215-0577 fax

Profile Products, LLC
219 Simpson Street SW
Conover, NC 28613
800-508-8681 / 847-215-0577 fax

TEMPORARY and PERMANENT EROSION and SEDIMENT CONTROL PRODUCTS

(for SILT FENCE see List II-3 GEOTEXTILES)

TEMPORARY EROSION and SEDIMENT CONTROL PRODUCTS

LIST II-24.1.1 - FLOW BAFFLES

PEB #	Product Name	Approved Manufacturer	Approval Date	BABA Compliant**
2590	EC-7Y Coir Mat	East Coast Erosion - Bernville, PA	8/1/2011	Y4
3013	Coir Mat 700 grams	Hanes Geo Components - Winston-Salem, NC	1/7/2013	Y4
4590	KoirMat 700	Nedia Enterprises, Inc. - Ashburn, VA	11/7/2016	Y4
4632	ES700CM	Core & Main - Willacoochee, GA	1/16/2018	Y4
4752	WINFAB Coir Mat 700	Willacoochee Industrial Fabrics - Nashville, GA	4/20/2018	Y4

LIST II-24.1.2 - TURBIDIMETERS

PEB #	Product Name	Approved Manufacturer	Approval Date	BABA Compliant**
2599	2100Q with USB+Power Module	Hach Company - Loveland, CO	8/1/2011	Y4
4041	HI 98703	Hanna Instruments - Woonsocket, RI	5/6/2013	Y4
4473	2020we	LaMotte Company - Chestertown, MD	3/7/2016	Y4

LIST II-24.1.3 - MANUFACTURED INLET PROTECTION DEVICES

PEB #	Product Name	Approved Manufacturer	Approval Date	BABA Compliant**
1323	SS-100A or SS-200A (w/ DOT Filter)	Silt-Saver, Inc. - Covington, GA	2/17/2003	Y4
5313	Frame and Filter (Model No. A-700A-DOT)	Silt-Saver, Inc. - Covington, GA	6/8/2021	Y4
5314	Frame and Filter (Model No. A-1000A-DOT)	Silt-Saver, Inc. - Covington, GA	6/8/2021	Y4
5315	Frame and Filter (Model No. A-1100A-DOT)	Silt-Saver, Inc. - Covington, GA	6/8/2021	Y4

LIST II-24.1.4 - WATTLES

PEB #	Product Name	Approved Manufacturer	Approval Date	BABA Compliant**
1397	Curlex Sediment Log	American Excelsior - Arlington, TX	5/3/2004	Y4
1597	Aspen Excelsior Logs	Western Excelsior - Mancos, CO	12/6/2004	Y4
1758	EXCEL Straw Logs	Western Excelsior - Mancos, CO	6/6/2006	Y4
1770	Natural Straw Wattle 2010	Winters Excelsior - McWilliams, AL	7/24/2006	Y4
1851	ECWattles 100% Agricultural Straw	East Coast Erosion - Bernville, PA	3/5/2007	Y4
1866	Wheat Straw Sediment Logs	Erosion Tech - Juliette, GA	6/5/2007	Y4
1849	Erosion Eel	Friendly Environment - Shelbyville, TN	8/13/2007	Y4
1649	Filtrexx Filter Soxx	Filtrexx International - Grafton, OH	11/5/2007	Y4
2114	AEC Premier Straw Wattles	American Excelsior - Arlington, TX	9/14/2009	Y4
1905	GeoBale	GeoHay - Spartanburg, SC	11/2/2009	Y4
2008	GeoWattle	GeoHay - Spartanburg, SC	11/2/2009	Y4
1994	Straw Wattle	US Erosion Control Products - Pearson, GA	3/3/2014	Y4
4500	RocSoxx Gabion Soxx	RocSoxx - Defuniak Springs, FL	2/6/2017	Y4
5410	Ninety7 Wattle (Model No. A1)	Global Management Group, Inc.	10/2/2023	Y4
5770	WINFAB Wattles	Willacoochee Industrial Fabrics - Nashville, GA	1/6/2025	Y4

LIST II-24.1.5 - FLOCCULANTS*

PEB #	Product Name	Approved Manufacturer	Approval Date	BABA Compliant**
1264	APS 700 Series	Applied Polymer Systems - Woodstock, GA		Y4
1232	EnviroPam (Granular)	Innovative Turf Solutions - Cincinnati, OH	4/2/2012	Y4
2907	FLOC	Innovative Turf Solutions - Cincinnati, OH	5/6/2013	Y4
4018	HaloKlear (StormKlear) DBP-2100 & Gel Floc (System)	Dober Chemical Group - Woodridge, IL	5/6/2013	Y4
4753	HydroLoc Floc (Flat)	Carolina Hydrologic, LLC. - Hilton Head, SC	1/6/2020	Y4
4754	HydroLoc H30 PAM (Anionic Linear Polyacrylamide)	Carolina Hydrologic, LLC. - Hilton Head, SC	1/6/2020	Y4

LIST II-24.1.6 - BASIN DEWATERING DEVICES

PEB #	Product Name	Approved Manufacturer	Approval Date	BABA Compliant**
2996	IAS Water Quality Skimmer	Innovative Applied Solutions - Jamestown, NC	1/6/2014	Y4
4140	ESC Skimmer	Erosion Supply Company - Raleigh, NC	1/6/2014	Y4
4182	Faircloth Skimmer Surface Drain	J.W. Faircloth & Son, Inc. - Hillsborough, NC	4/7/2014	Y4
4246	Marlee Float Skimmer (#1, #2, #3)	SW FeeSaver - Greenville, SC	5/4/2015	Y4
5121	Turtle Creek Erosion Products - 2" & 4" Sediment Basin Drain (Model Nos. TC-2 & TC-4)	Turtle Creek Erosion Products, LLC. - Auburn, AL	4/5/2021	Y4
5337	Turtle Creek Erosion Products - 2.5" Sediment Basin Drain (Model Nos. TC-2.5)	Turtle Creek Erosion Products, LLC. - Auburn, AL	8/9/2021	Y4
5338	Turtle Creek Erosion Products - 3.0" Sediment Basin Drain (Model Nos. TC-3.0)	Turtle Creek Erosion Products, LLC. - Auburn, AL	8/9/2021	Y4

**Visit http://www.dot.state.al.us/conweb/ATC.html for a list of Manufacturer's Safety Data Sheets and Dosing Recommendations for Treatment Chemicals found in Flocculants.*

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PERMANENT EROSION and SEDIMENT CONTROL PRODUCTS

LIST II-24.2.1 - TIED CONCRETE BLOCKS**

PEB #	Product Name	Approved Manufacturer	Approval Date	BABA Compliant**
2068	Flexamat	Motz Enterprises, Inc.	12/6/2010	Y2
4690	ShoreFlex	Premier Concrete Products	3/18/2018	Y2

**Visit http://www.dot.state.al.us/conweb/ATC.html for a list of Manufacturer's Safety Data Sheets and Dosing Recommendations for Treatment Chemicals found in Flocculants.*

**These products can also be found on Miscellaneous Approved Products List.

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- Refer to the link below for the Procedures for Evaluation and Maintenance for this list for maintenance requirements and removal conditions:
https://www.dot.state.al.us/publications/Materials/PROCS.html

APPROVED MANUFACTURERS

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Carolina Hydrologic, LLC.
PO Box 3073
Hilton Head, SC 29928
843-906-4614

Core & Main Geosynthetics
1670 Springhead Church Road
Willacoochee, GA 31650
912-534-6071 / 912-534-6254 fax

Dober Chemical Group
11230 Katherine's Crossing, Suite 100
Woodridge, IL 60517
800-323-4983

East Coast Erosion Control
443 Bricker Road
Bernville, PA 19506
800-582-4005

Erosion Supply Company
8817 Midway West Road
Raleigh, NC 27617
919-787-0334

Erosion Tech
105 Plant Camellia Road
Juliette, GA 31046
866-894-7458 / 478-994-3001 fax

Filtrexx International
35481 Grafton Eastern Road
Grafton, OH 44044
440-926-2607 / 440-926-4021 fax

Friendly Environment
335 Squire Hall Road
Shelbyville, TN 37160
866-420-3357

GeoHay, LLC
110 Commercial Road
Spartanburg, SC 29303
800-554-2082

Global Management Group, Inc.
PO Box 19731
Birmingham, AL 35219
205-261-1163

Hach Company
5600 Lindbergh Drive
Loveland, CO 80539
800-227-4224
205-381-7844 Julie Dawson (South of Autauga/Chilton)
770-862-1215 Greg Cuzzort (North of Autauga/Chilton)

Hanes Geo Components
815 Buxton Street
Winston-Salem, NC 27101
205-428-2007

Hanna Instruments
584 Park East Drive
Woonsocket, RI 02895
321-223-7500

Innovative Applied Solutions
200-3B Lennox Drive
Jamestown, NC 27282
336-698-4275

Innovative Turf Solutions
3318 Glenmont Ln.
Cincinnati, OH 45248
513-317-8311

J.W. Faircloth & Son, Inc.
412 A Buttonwood Drive
Hillsborough, NC 27278
919-732-1244 / 919-732-1266 fax

LaMotte Company
802 Washington Ave
Chestertown, MD 21620
410-778-3100 / 410-778-6394 fax

Motz Enterprises Inc.
9415 Montgomery Road
Montgomery, OH 45242
513-460-3147

Nedia Enterprises, Inc.
44675 Cape Court, Suite 120
Ashburn, VA 20147
571-223-0200

Premier Concrete Products
38200 Highway 16
Watson, LA 70706
225-304-3985

RocSoxx, LLC.
43 Maple Street
Defuniak Springs, FL 32435
850-333-2467

Silt-Saver, Inc.
1200 Forrester Cemetery Rd
Covington, GA 30014
770-388-7818

SW FeeSaver, LLC
803 Roper Creek Drive
Greenville, SC 29615
855-697-9333

Turtle Creek Erosion Products, LLC
6053 Stage Road
Auburn, AL 36832
334-521-5320

US Erosion Control Products
1034 Albany Avenue West
Pearson, GA 31642
800-948-7870 / 912-534-6254 fax

Western Excelsior
901 Grand Avenue
Mancos, CO 81328
800-833-8573

Winters Excelsior Co.
77 Holly Road
McWilliams, AL 36753
800-248-7237 / 251-746-2173 fax

Willacoochee Industrial Fabrics
1 Nashville Mills Road
Nashville, GA 31639
912-381-9508

Pursuant to Part IV.S. [Facility Identification] of the GP, the permittee is required to post and maintain facility identification. The permittee is required to post a sign at the front gate/entrance to identify the site. The permittee may use this example sign or create and use a sign meeting the requirements of Part IV.S. of the permit. If this sign is used, please make copies to post, and keep this original in your files. PLEASE PRINT CLEARLY USING BLUE OR BLACK INK. Areas that contain * are not required to be completed.

ADEM NPDES GENERAL PERMIT #:		
ADEM AUTHORIZATION #:		
FACILITY NAME:		
PERMITTEE:	***CONTACT:**	***PHONE #**
***ADDRESS:**		
***CITY:**	***STATE:**	***ZIP CODE:**

Rev 02/05/2025

NOTES