DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

INTRADEPARTMENTAL CORRESPONDENCE

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HYDRAULICS OFFICE
(225)379-1306

MEMORANDUM

TO: ROAD DESIGN SECTION
BRIDGE DESIGN SECTION
CONSTRUCTION SECTION
DISTRICT ADMINISTRATORS
DISTRICT DESIGN OFFICES
ENVIRONMENTAL SECTION
PROJECT MANAGEMENT SECTION

FROM: Steve Lee, P. E.
Hydraulics Engineer Administrator

DATE: November 1, 2007

SUBJECT: **DESIGN POLICY ON EROSION CONTROL**

The attached documents are a re-issuance of LADOTD's Design Policy on Erosion Control with minor changes. An additional example has been added to the documentation. Also, the section entitled "Plan Checking & Design Procedures for Erosion and Sediment Control on LADOTD N/LPDES Permitted Project" was to be included in the Hydraulics Manual, and it is labeled as such; however, this information will not be included in the Hydraulics Manual as the Design Policy on Erosion Control is being updated periodically to correspond with changes in EPA and DEQ policy.

Further information can be obtained by contacting Sarah Golz in the Hydraulics Section at (225) 379-1430.

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APPROVED DATE

ROAD
DESIGN

EROSION CONTROL GUIDELINES

HYDRAULICS
UNIT

PLAN CHECKING AND DESIGN PROCEDURES FOR EROSION & SEDIMENT CONTROL

SUPPLEMENT TO HYDRAULICS MANUAL

NOVEMBER 2007

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

INTRADEPARTMENTAL CORRESPONDENCE

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HYDRAULICS OFFICE
(225)379-1306

MEMORANDUM

TO: ROAD DESIGN SECTION
BRIDGE DESIGN SECTION
CONSTRUCTION SECTION
CONTRACTS & SPECIFICATIONS SECTION
DISTRICT DESIGN OFFICES

FROM: Jack Manno, P. E.
Hydraulics Engineer Administrator

DATE: June 1, 2005

SUBJECT: **DESIGN POLICY ON EROSION CONTROL**

With the issuance of Phase II (March 2003) and recent renewal of Phase I (October 2004) of Louisiana Pollutant Discharge Elimination System (LPDES) Storm Water General Permits for Construction Activities, the Department is paying closer attention to how it addresses the control of storm water runoff from its construction sites. To facilitate this effort, DOTD has in part, developed policies for designers such that controlling erosion and sediment on the job site becomes part of the overall design process. The development of guidelines, or plan review procedures, to address storm water runoff and consequential erosion problems is required as part of our state's overall Storm Water Management Program. Consultants and in-house designers alike must now prepare project specific plans for controlling erosion and sediment loss on state projects for which these permits pertain.

The designer should understand that the erosion and sediment control plan must be viewed as only a "first appraisal" to what must be implemented. Drawings are to be designed, reviewed, and implemented with the intent that they will be modified as construction activities progress. Including controls on the plans and checking them in the field will provide us with better estimates of quantities for pay items. This in turn, will assist the contractor in preparing an erosion control plan to submit to the Department. During the plan-in-hand visit, designers should look for the locations where, and the nature of, any existing or potential erosion problems, locations where temporary controls could or could not be placed, and locations where permanent, post-construction controls may need to be placed. A final estimate of erosion control items should be made after the plan-in-hand visit.

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SUBJECT: **DESIGN POLICY ON EROSION CONTROL**

Attached is a document entitled "Plan Checking and Design Procedures for Erosion and Sediment Control on LA DOTD N/LPDES Permitted Projects". These procedures were developed based upon a conglomeration of current DOTD policies, specifications, and the AASHTO Highway Drainage Guidelines Manual, Volume III – AASHTO Guidelines for Erosion and Sediment Control in Highway Construction.

Some changes were made to DOTD policies based upon current permitting requirements. The most noteworthy changes are:

- ✓ Most temporary erosion controls will now be included on the plan or construction sequencing sheets.
- ✓ The installation and removal of erosion controls are now included in the phasing notes on the construction sequencing sheets.
- ✓ A new symbol legend for temporary erosion controls has been developed.
- ✓ The locations of erosion controls are more clearly specified. This should aid in better quantity estimates and hopefully, fewer plan changes.

Also attached are four examples for incorporating erosion and sediment controls into the plans, as well as a symbology sheet. The first example is a portion of a set of plans showing specific locations, as well as quantities for erosion controls. This project was commended by the FHWA for its effort in identifying the need for and handling of erosion control items.

The attached guidelines have been approved by the Chief Engineer (see attached memo dated 3/10/05). They are to be included as an addendum to the LA DOTD Hydraulics Manual. This letter should serve as a notice to your employees and our consultants. Further information can be obtained by contacting Julie Taylor, Hydraulic Design Engineer at (225) 379-1931.

c: N. Kent Israel, Road Design Administrator
c: Hossein Ghara, Bridge Design Administrator
c: Rick Holm, Chief of Construction Division
c: Neal Thibodeaux, Contracts & Specifications Administrator
c: Ronnie Robinson, Jesse McClendon, Nicholas Verrett, Jr., Patrick Landry, Paul Colquette, Don Maddox, Teddy Babin, Michael Stack, District Design, Water Resources, and Development Engineers
c: Ken Mason, District Design and Traffic Engineer
c: Roy Dupuy, Chief Landscape Engineer
c: Ed Bodker, Environmental Impact Manager

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

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HYDRAULICS OFFICE
(225)379-1306

MEMORANDUM

TO: OFFICE OF THE CHIEF ENGINEER
Mr. William H. Temple, P. E.
DOTD Chief Engineer Administrator

FROM: Julie Taylor, P. E.
Hydraulic Design Engineer
Road Design/Hydraulics Unit

DATE: March 10, 2005

SUBJECT: **PROPOSED DESIGN POLICY ON EROSION CONTROL**

For reasons specified herein the attached documents, a draft set of plan checking and design guidelines has been developed for use on DOTD NPDES permitted projects. These guidelines could result in noticeable changes to the current plan preparation methods. The intent is to satisfy federal regulators while at the same time, providing a more definitive erosion control plan with better quantity estimates and fewer plan changes. In order for designers to develop an effective erosion and sediment control plan, they must understand what is required for effective sediment and erosion control, as well as what is required to complete inspections in the field. This means producing clear and practical drawings such that the contractor understands how to install and maintain specified erosion controls, including Best Management Practices (BMPs). Ideally, plans should indicate where erosion controls (or BMPs) are to be installed, and when, or at what phase of construction, to install them.

The attached package was circulated to each of the major design sections and to construction personnel at headquarters as well as to the district design offices. A copy of the cover letter is attached. Feedback has been incorporated into the latest draft of the guidelines as attached here. These guidelines have been developed with the intention of including them as an addendum to our Hydraulics Manual. I am asking your office to review this package, and provide any comments or suggestions and/or approval for the proposal.

Should there be any questions, please contact Mr. Jack Manno (3-1306) or myself (3-1931).

c: Jack Manno, Hydraulic Engineer Administrator

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PLAN CHECKING & DESIGN PROCEDURES
FOR
EROSION & SEDIMENT CONTROL
ON
LA DOTD N/LPDES PERMITTED PROJECTS

This document pertains to those projects which fall under Phase I and Phase II of **L**ouisiana's **P**ollutant **D**ischarge **E**limination **S**ystem permitting program. The program applies to all construction projects disturbing one acre or greater of land as of March 2003.

Plan checking and design procedures on the use of erosion and sediment controls are to be followed according to the *Roadway Design Procedures and Details Manual (RDM)* with few exceptions as shown herein. A reference is made to section 4.5.2 of this manual and Standard Plan EC-01. Temporary erosion controls should be shown on the plan and construction sequence sheets, or on separate sheets altogether. This is a revision to section 8.2.5(h) of the RDM. Where many controls are required such that they would clutter the plans, the controls should instead, be listed in tables on summary sheets. Temporary erosion control symbols should be included as part of a plan symbol legend. Structural controls should have details for their installation included within the plans. Examples of structural (i. e., sediment) controls are silt fencing, sediment basins, check dams, etc. See Standard Plan EC-01. New products are continuously being developed to aid in erosion and sediment control. Products equivalent to the traditional ones mentioned in this document are acceptable as approved by the LADOTD.

Plan preparation procedures for separate, temporary erosion control sheets are also included. They should follow similar procedures to those discussed below for showing controls within the traditional plan set. The guidelines and procedures listed below are used to supplement, and may supersede, the RDM and Standard Plan EC-01.

PRELIMINARY DESIGN/PLAN CHECK

Roadside, median, and temporary ditches should have hay/straw or stone (or equivalent material) check dams placed in them. There are many options for the temporary stabilization of ditches. Construction personnel are allowed to make adjustments for field conditions. As a guideline, check dams should only be used in channels with a contributing drainage area of 10 acres or less. Additionally, they should only be placed in channels having a 10% grade or less, and where the depth of flow is not expected to exceed one (1) foot. Use hay or straw baled check dams where the maximum contributing drainage area is 2 acres. Use stone check dams where the drainage area is between 2 and 10 acres. (It will not be necessary to show such drainage areas on the Design Drainage Map.) The maximum spacing between dams should be such that the toe of the upstream dam is at the same elevation as the top of the downstream dam.

Check dams range from 1½ ft. to 3 ft. in height, depending on the channel cross-section or depth of flow. The height should be equal to the top of the lower channel bank or to the depth of anticipated flow, whichever is lower, with a minimum of 1½ ft. The center of the dam should be at least 6 inches lower than the height (outer edges). The bottom length should be three times the height (3 x h).

On bridge construction and replacement jobs, silt fencing (or an equivalent product) should be specified near the toe of the banks, parallel to the waterway and between the right-of-way limits on either side of the bridge. Roadside channels on either side of the bridge should have either check dams or bridge/erosion drain pipes (*ditch blocks*) to help slow channel velocity from any runoff during the time of construction, when the bridge embankment is vulnerable to erosion. Silt fencing and check dams used here can be shown on either the plan or bridge general plan sheets. (Refer to section 5.2.4 of the RDM and Chapter I of the Hydraulics Manual for design details pertaining to ditch blocks.)

Existing catch basins (both curb & open-top inlet types) that are to remain on a project should have some form of silt protection. Traditionally, this has been accomplished with either silt fence or hay/straw bales and thus, accounted for in a (204) pay item. Rock or stone barriers are also acceptable as long as they are properly installed. Because drainage work is performed early in the construction period, proposed catch basins should also have inlet protection.

Permanent erosion control at the outlets of cross drain structures should be noted on the preliminary plans (section 8.2.5(5.b) of the RDM).

(This paragraph reserved for future design guidelines pertaining to detention/sediment basins.)

FINAL DESIGN/PLAN CHECK

Standard Plan EC-01 should be included in the final plan set.

Silt fencing is used to minimize the amount of sediment leaving the construction site and/or entering water ways. It is also used to decrease the velocity of sheet flows. Silt fencing should be shown on the plans along areas of disturbance sloping away from the project site or towards adjacent, naturally existing water ways. It should not cross entrance and drainage ways. Disturbed areas typically extend fifteen (15) feet outside the limits of construction or to the limits of right-of-way, whichever is less. A look at the existing cross-sections will indicate slopes during clearing and grubbing operations. On urban projects where fore slopes are toward the roadway and inlet protection is specified, silt fence will likely not be necessary. The estimated quantity for silt fencing should take these and other situations into consideration. Silt fencing that coincides with the right-of-way should be indicated with an arrow and note at least once per plan sheet. At other locations, silt fencing should be indicated with the appropriate symbol at least once per plan sheet. Summary tables are now not required for silt fencing, since the plans can better indicate locations.

Show temporary slope (embankment) drains on the plans to carry storm water from the work area down unprotected long (greater than 100 ft.) and/or steep (greater than 2:1) slopes. Slope drains are typically only necessary on large, embankment moving projects. Earthen berms directing water into the pipe inlets should also be shown on the plans (see Std. Plan EC-01) unless the slope drains are included in a summary table(s).

Permanent erosion controls (i. e., seeding, mulching, rip-rap, erosion control systems, etc.), if not indicated on plan or profile sheets, should be tabulated in summary tables. This is a slight modification of Section 8.2.5(h) of the RDM. Locations (i. e., to and from stationing, and Lt., Rt., or Med. of roadway) and type (i. e., vegetative mulch, Type A covering, 30-lb rip-rap class, etc.) should be clearly indicated. (Refer to the Hydraulics office for design procedures pertaining to channel protection and rip-rap sizing/placement.) Erosion control coverings should be shown on either the profile sheets or listed in a summary table(s). They are used for either slope or channel protection, and should be labeled as such. Temporary check dams should still be placed in channels requiring covering until vegetation is established and the dams can be removed. The quantity for temporary seeding in these areas will be computed as specified in the appendix of the Road Design Manual under Miscellaneous Design Aids, *Rules Associated with Pay Items.* Rip-rap used at bridge abutments should be indicated on the bridge general plan sheets.

Pay items for temporary erosion controls should be included on the *Summary of Estimated Quantities* sheets. These include such items as temporary silt fencing and temporary slope drains (204-). Though not necessarily shown within the plans, at least two (2) items for temporary stone construction entrances should also be included on the *Summary of Estimated Quantities* sheets. Design aids for estimating temporary erosion control quantities are provided in the appendix of the Road Design Manual under Miscellaneous Design Aids, *Rules Associated with Pay Items*.

Pay items for permanent erosion controls should be included on the *Summary of Estimated Quantities* sheets. These include such items as fertilizing (718-01) and seeding (717-01), landscaping (719-), erosion control systems (720-), riprap used as outlet protection for cross drains and at bridge abutments (711), and others in the 700-no. category. Fertilizing and seeding limits are usually indicated on the typical section sheets (section 8.2.3(6) of the RDM). Permanent erosion controls can be used in place of temporary controls if placed early enough, and may share pay item numbers. Design aids for estimating permanent erosion control quantities are provided in the appendix of the Road Design Manual under Miscellaneous Design Aids, *Rules Associated with Pay Items*.

SEQUENCE OF CONSTRUCTION

Temporary erosion and sediment controls are usually installed during the first phase of construction, before the land is disturbed. In fact, storm water permit coverage starts from the commencement of construction activities until final project stabilization. Temporary structural controls must be removed whenever they are no longer necessary in serving their purpose, or when the protected area has been stabilized through the use of seeding and mulching, erosion control blankets, rip-rap, or other means. The installation and removal of controls and practices used to control erosion (BMPs) should be indicated on construction sequencing sheets. Below are guidelines for the sequencing of erosion controls and BMPs on LA DOTD state projects:

Silt fencing should be installed before clearing and grubbing operations begin, except when clearing involves installing the fence. Typically, this would be performed in the first stage of phase one of construction. It should be removed once the upslope area being protected has been stabilized. On bridge construction jobs over water ways, silt fencing should be installed before ground-breaking activities begin. On bridge replacement jobs over water ways, it should be installed prior to existing bridge removal and detour bridge construction (if applicable). In the case of both bridge construction and replacement jobs, it can be removed once the bridges and abutment protection are in place.

Slope drains and their temporary earth berms should be installed after clearing and grubbing and grading of the embankment slope has occurred. It should be removed only when the disturbed slope upon which it rests has been stabilized. This should be before roadway base work begins.

Check dams should be installed immediately after the channel is brought to grade, and should be removed only after the upslope channel for which they serve has been stabilized. Check dams in roadside channels near bridges should be placed before ground-breaking activities begin, or after ditch grading (if applicable). They should be removed after the installation of any bridge/erosion drain pipes (*ditch blocks*), or after the upslope channel for which they serve has been stabilized. Check dams should be tabulated in summary sheets indicating their locations by stationing. Where only a few dams are required, they can instead, be indicated on the sequence of construction sheets with a symbol, at a minimum scale of 1:1000 or 1” = 80’.

Protection for existing drainage inlets remaining onsite should be fully installed before clearing and grubbing operations begin in the area. Protection for proposed drainage inlets should be installed immediately after the new inlets are in place. In both cases, they should not be removed until the upslope area for which they serve has been stabilized. Inlet protections should typically be the last erosion controls removed from a site. They can be indicated on the sequence of construction sheets with a symbol, at a minimum scale of 1:1000 or 1” = 80’. Protection for many catch basins as part of subsurface drainage systems should instead, be listed in a summary table(s).

Temporary seeding, if necessary prior to permanent seeding, occurs after clearing, grubbing and grading operations. The limits are the same as that indicated on the typical section sheets for permanent seeding, and need not be shown elsewhere. A note on the sequence of construction sheets will suffice.

Erosion controls shown on the plan sheets reflect their initial placement.
During construction, some controls may need to change location based upon grade changes required to form the typical sections and based upon the location of detour roads. No additional payment will be made for the moving of erosion control devices at different sequences of construction. The former statement should be included in the notes of the construction sequence sheets.

Below is a reference table summarizing where erosion and sediment controls should be incorporated into the plan set.

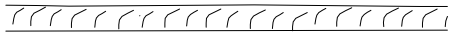
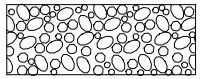
E & S Control	**Location in plan set**	**Include in summary tables?**
Silt fence	plan, bridge general plan sheets	Not required
Slope drains	plan sheets	Yes, if not on plan sheets
Check dams	construction sequence sheets	Yes, if not on construction sequence sheets
Inlet protection	construction sequence sheets	Yes, if not on construction sequence sheets
Stone construction entrances	construction sequence sheets, if location known	No
Seeding, fertilizing, mulching & sodding (temporary & permanent)	typical section sheets	No
Erosion control systems	profile sheets	Yes, if not on profile sheets
Rip-rap (permanent)	plan, bridge general plan sheets	Yes, if used for channel lining

TEMPORARY EROSION AND SEDIMENT CONTROL SHEETS

The designer has the option of placing temporary erosion and sediment control measures on separate sheets. These should consist of layout sheets (similar to a construction sequence sheet) at a minimum scale of 1:000 or 1"= 80'. Layout sheets should indicate drainage patterns and, like the construction sequence sheets, a description of the phasing in of practices and controls. Temporary erosion control symbols should be included as part of a plan symbol legend on these sheets, and may include part or all of the construction legend to illustrate sequencing with roadway construction.

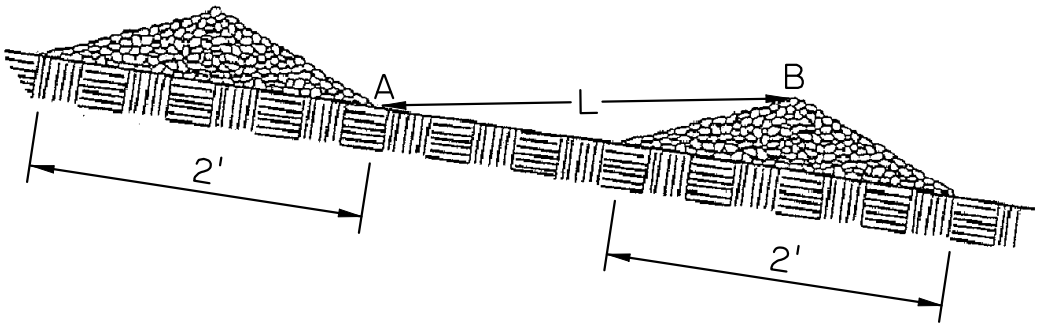
Where many controls are required such that may clutter these sheets, the controls should instead, be listed in tables on summary sheets, as mentioned previously. Permanent erosion controls should be shown on the appropriate sheets within the traditional plan set. They should be placed as soon as practical after clearing, grubbing, grading operations and if appropriate, after drainage installations.

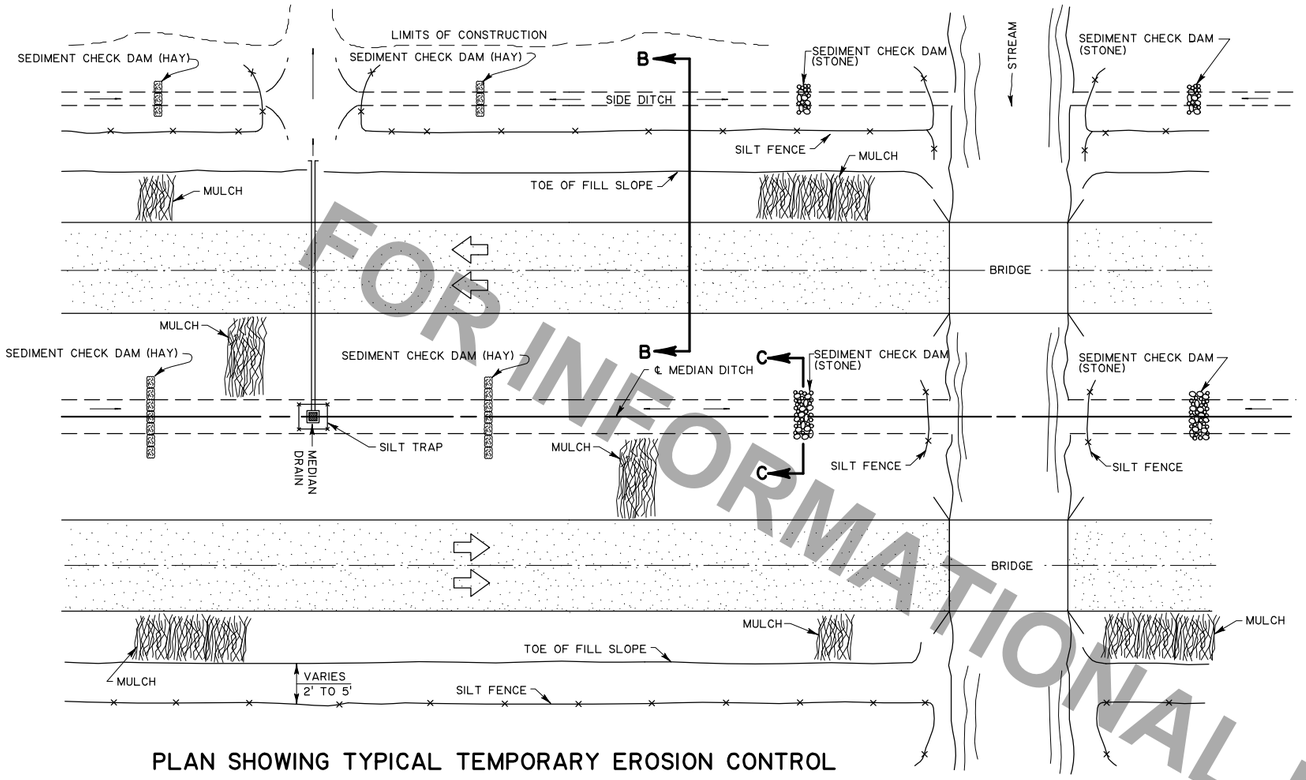
TEMPORARY EROSION & SEDIMENT CONTROL SYMBOLOGY

SILT FENCE	
TEMPORARY BERM	
SEDIMENT CHECK DAM (STONE)	
STABILIZED CONSTRUCTION ENTRANCE	
HAY BALES OR SEDIMENT CHECK DAM (HAY)	
INLET PROTECTION	
TEMPORARY SLOPE DRAIN	

SPACING BETWEEN CHECK DAMS

L = THE DISTANCE SUCH THAT POINTS
A AND B ARE OF EQUAL ELEVATION



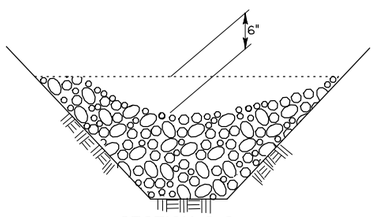


PLAN SHOWING TYPICAL TEMPORARY EROSION CONTROL

MULCHES

Mulches are the application of mats of material placed on the soil surface to prevent erosion by protecting the soil surface from raindrop impact and to reduce the velocity of overland flow. Mulches can be organic or synthetic. Mulches shall be in accordance with subsection 1018.19 of the LA DOTD Standard Specifications. A few guidelines for the use of Mulches are:

1. Use on cut and embankment slopes which have not been completed to plan grade or where the weather or soil conditions will not permit completing them within a reasonable time;
2. Use on cleared , grubbed, and scalped areas where soil erosion is likely to occur;
3. Use with temporary seeding.



SECTION C-C

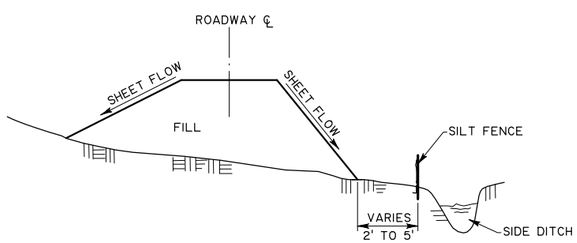
TEMPORARY SEDIMENT CHECK DAM (STONE)

PAY ITEM: 204(05)(B), TEMPORARY SEDIMENT CHECK DAM (STONE)

NOTES:

A stone check dam is a small temporary dam constructed across a swale or drainage ditch. The purpose of this measure is to reduce the velocity of concentrated stormwater flows, thereby reducing erosion of the swale or ditch. The stone check dam will trap small amounts of sediments generated in the ditch itself, however it should not be used as a sediment trapping device. A few basic design guidelines for the use of Stone Check Dams are:

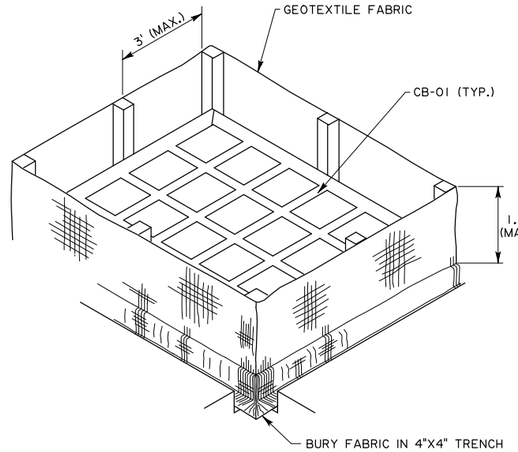
1. Use in small open channels which drain 10 acres or less;
2. Do not use in a live stream;
3. Use in a temporary ditch or swale which, because of their short length of service, cannot receive a non-erodible lining;
4. Use in permanent ditches or swales which will not receive a permanent lining for an extended period of time;
5. Use in temporary or permanent ditches or swales which need protection during the establishment of grass linings.
6. For stone specifications see subsection 711.02(a)(Class 2LB.) of the LA DOTD Standard Specifications.



SECTION B-B

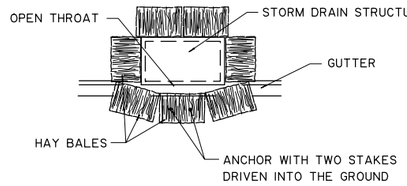
TEMPORARY SILT FENCE APPLICATION

(FOR CONSTRUCTION DETAILS AND SPECIFICATIONS SEE SHEET 2 OF 2.)



ISOMETRIC VIEW SHOWING GEOTEXTILE FABRIC

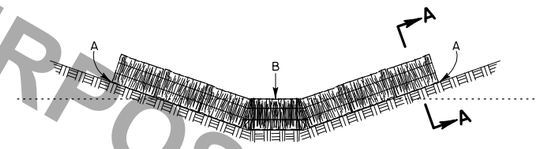
(BACKFILL SOIL NOT SHOWN)



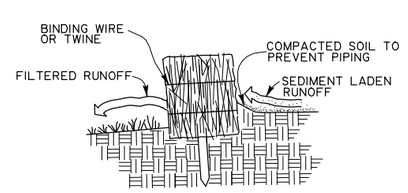
PLAN SHOWING HAY BALES

PAY ITEM: 204(02), TEMPORARY BALED HAY OR STRAW

TEMPORARY INLET SILT TRAP



ELEVATION



SECTION A-A

TEMPORARY SEDIMENT CHECK DAM (HAY)

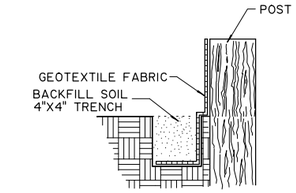
PAY ITEM: 204(05)(A), TEMPORARY SEDIMENT CHECK DAM (HAY)

NOTES:

A hay bale barrier is a temporary sediment barrier consisting of a row of entrenched and anchored bales of straw or hay. The hay bale barrier is also used as a check dam to reduce the velocity in small ditches or swales. The hay bales shall be in accordance with LA DOTD Standard Specifications, Section 204. A few basic design guidelines for the use of a Hay Bale Barrier are:

1. Use where erosion would occur in the form of sheet and rill erosion;
2. Use in minor swales or ditches where the maximum drainage area is 2 acres;
3. Only use where the effectiveness is required for less than 3 months;
4. Do not use in live streams or in swales or ditches where there is a possibility of a washout.

F.A.P.	STATE PROJECT	PARISH	SHEET NO.



SECTION THRU TRENCH SHOWING GEOTEXTILE FABRIC

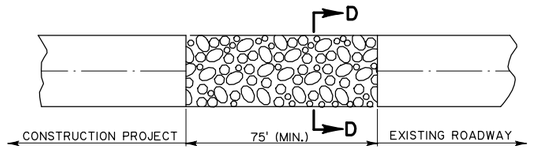
NOTES:

The temporary drop inlet silt trap is to be used for small drainage areas (less than 1 acre) where the storm drain is functional before the area is stabilized. The trap can be either geotextile fabric or hay bales.

1. The geotextile fabric shall conform to Section 1019 (Type G) of the LA DOTD Standard Specifications.
2. Wooden stakes supporting the fabric shall be 2" x 2" or 2" x 4" with a minimum length of 3 feet. The stakes shall be spaced around the inlet at a maximum spacing of 3 feet.
3. The height of the fabric above the inlet shall be limited to 1.5' and the bottom of the fabric shall be buried in a trench approximately 4" wide by 4" deep. The fabric shall be stapled to the post with ½" staples.
4. The trap should be inspected regularly and after each storm. The sediment should be removed and make sure each stake is firmly in the ground.

DATE	DESCRIPTION	BY
	REVISIONS	

STANDARD PLAN NO. EC-01		SHEET 1 OF 2
TEMPORARY EROSION CONTROL DETAILS		
DATED January 14, 1994		
STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT		
DESIGNED JCM	DETAILED KAJ	DIR. cadd/dgn/stdplans
CHECKED	CHECKED JCM	FILENAME ec01.dgn
Approved By Chief Engineer (Original Signed By Chief Engineer) Date (1-14-94)		



PLAN

SECTION D-D

TEMPORARY STONE CONSTRUCTION ENTRANCE

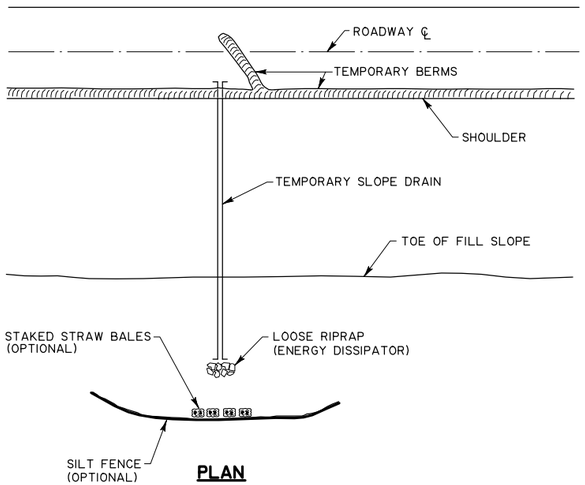
PAY AS "S - ITEM", TEMPORARY STONE CONSTRUCTION ENTRANCE

NOTES:

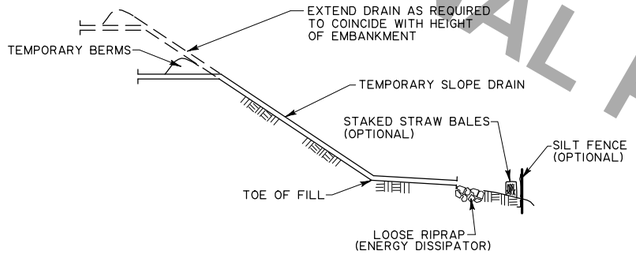
TEMPORARY STONE CONSTRUCTION ENTRANCE AND/OR WASH RACK

A stone stabilized pad located at points of vehicular ingress and egress on the construction site to reduce the amount of mud transported onto public roads. If the action of the vehicle traveling over the gravel pad is not sufficient to remove the majority of the mud, then the tires must be washed before the vehicle enters a public road. A few basic design guidelines for the use of a Stone Construction Entrance and/or Wash Racks are:

1. The stone layer must be at least 6 inches thick;
2. The stone shall conform to Section 711(02)(Class 2LB) of the LA DOTD Standard Specifications;
3. The length of the pad must be at least 75 feet and it must extend the full width of the vehicular ingress and egress;
4. A geotextile fabric underliner is required. The geotextile fabric shall be in accordance with Section 1019 (Type D); of the LA DOTD Standard Specifications;
5. If a wash rack is necessary, provisions must be made to intercept the wash water and trap the sediment before it is carried off-site.



PLAN



ELEVATION

TEMPORARY SLOPE DRAIN

NOTES:

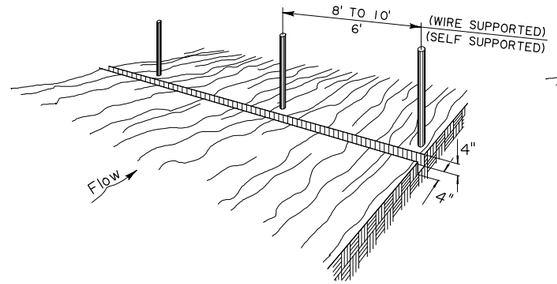
A temporary slope drain is a device used to carry water from the construction work area to a lower elevation. Slope drains may be plastic sheets, metal or plastic pipe, stone gutters, fiber mats, or concrete or asphalt ditches. A few basic design guidelines for the use of a Temporary Slope Drain are:

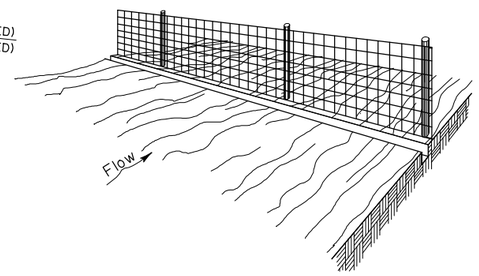
1. The spacing of the slope drains varies with the road grade.
   For Grades: 0.0% - 2.0% use 500' spacing
   2.1% - 5.0% use 200' "
   Greater than 5.0% use 100' "
2. Slope drain material: Smooth pipe - 8" minimum
   Corrugated pipe - 12" minimum
   Plastic sheeting - 4' wide minimum
   " " - 3 mils thick min.
3. Plastic sheeting can be staked down or weighted with rocks or logs. The area under the sheeting should be shaped to provide an adequate channel.
4. The outlet end should be protected or have some means of dissipating energy. The flow should be directed through a sediment trap such as a silt fence or hay bales.
5. To insure proper operation, temporary slope drains should be inspected regularly and after each storm, for clogging or displacement. Erosion at the outlet should be checked and the silt traps cleaned if necessary.

F.A.P.	STATE PROJECT	PARISH	SHEET NO.

1. SET POSTS AND EXCAVATE A 4" X 4" TRENCH UPSLOPE ALONG THE LINE OF POSTS.

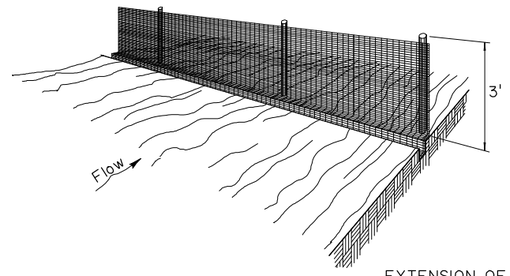
2. STAPLE WIRE FENCING TO THE POSTS.

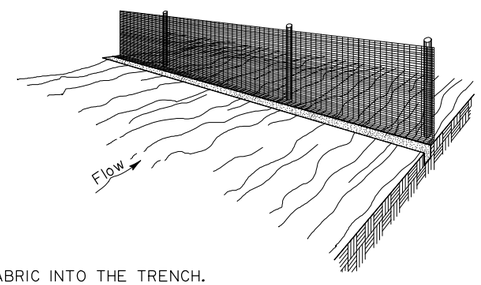




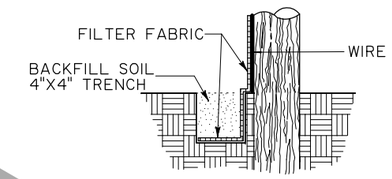
3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.

4. BACKFILL AND COMPACT EXCAVATED SOIL.





EXTENSION OF FABRIC INTO THE TRENCH.



CONSTRUCTION OF TEMPORARY SILT FENCING

(WIRE SUPPORTED SILT FENCE IS SHOWN. SELF SUPPORTED SILT FENCE WILL BE CONSTRUCTED ACCORDING TO MANUFACTURERS SPECIFICATIONS.)

NOTES:

Silt fencing is a temporary sediment barrier consisting of a filter fabric supported by post and stretched across an area to intercept and detain small amounts of sediment. The silt fencing shall be in accordance with Section 204 of the LA DOTD Standard Specifications.
A few basic guidelines for the use of Silt Fencing are:

1. Use where erosion would occur in the form of sheet and rill erosion;
2. Use where the maximum drainage area behind the silt fence is 1/4 acre per 100 feet of silt fence length;
3. Use where the maximum slope length behind the barrier is 100 feet;
4. Use where the maximum gradient behind the barrier is 2:1;
5. Do not use silt fences in live streams or in ditches or swales where flows exceed one cubic foot per second.

DATE	DESCRIPTION	BY

REVISIONS

STANDARD PLAN NO.	EC-01	SHEET 2 OF 2

TEMPORARY EROSION CONTROL DETAILS

DATED January 14, 1994

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

DESIGNED JCM	DETAILED KAJ	DIR. cadd/dgn/stdplans
CHECKED	CHECKED JCM	FILENAME ec01.dgn

Approved By Chief Engineer (Original Signed By Chief Engineer) Date (1-14-94)

EXAMPLE 1

EXAMPLE I - Page I of II

FOR DETAIL OF INTERSECTION & MEDIAN OPENING SEE SHEET 57

NOTE: GRADE LEFT DITCH TO DRAIN FROM MEDIAN DRAIN OUTFALL PIPE AT STA 16+925 TO TIE-IN AT STA 4+974 ON WALNUT HILL ROAD. (NO DIRECT PAY)

STA. 16+960.321 PROJECTED & ADOPTED = STA. 4+931.927 WALNUT HILL ROAD P&A

STA. 16+848.676 LA 28 (EAST BOUND) S&A = STA. 5+000.000 WALNUT HILL ROAD S&A

STA. 16+943 REQ'D. 4 m TYPE "C" DRIVE

STA. 16+957.721 LA 28 S&A = STA. 4+945.527 WALNUT HILL ROAD P&A

4.6m(15')

FOR EMBANKMENT WIDENING DETAILS SEE SHEET 2a

SCALES: 1:600 H, 1:60 V

VPI STA 16+835.000
ELEV 94.038

-0.069%

MEDIAN DITCH -0.950%
LEFT DITCH -1.548%
RIGHT DITCH -1.412%
MEDIAN DITCH -1.725%
LEFT DITCH -1.111%

CURVE LEN=360.000

FINISH GRADE ELEV 93.382

EXISTING GROUND @ W&L 95.170

STA. 16+880 P.I. 0' LEFT ELEV.=90.500 P.I.O.C. MEDIAN ELEV.=91.600

STA. 16+925 END MEDIAN DITCH ELEV.=90.800 END LEFT DITCH ELEV.=90.000

STA. 16+935 END RIGHT DITCH ELEV.=90.200

REFERENCE TIE ⊕ STA. 17+840.087 S&A / 8.952m RT

STA. 16+925 REQ'D. CB-01 ⊕ MEDIAN TOP=90.800 INV.=90.100 REQ'D. GROSS DRAIN PIPE 375 mm X 28.5 m

F.L. MEDIAN=90.100
F.L. LEFT =90.000

P&A
S&A
EXIST. GRD. W.B.L.

STA. 16+600 TO STA. 17+200
GENERAL EXCAVATION 35 943 m³
EMBANKMENT 4 269 m³

VPT STA 17+015.000
ELEV 89.719

-2.399%
MEDIAN DITCH -2.476%
LEFT DITCH -2.424%

VPC STA 17+095.000
ELEV 87.800

CURVE LEN=150.000

0.000%
MEDIAN DITCH +0.357%

VPI STA 17+170.000
ELEV 86.000

F.L. MEDIAN=84.500
F.L. LEFT =84.426

STA. 17+165 P.I. 0' ⊕ MEDIAN TOP=85.200 INV.=84.500 REQ'D. CROSS DRAIN PIPE 375 mm X 28.9 m

STA. 17+200 P.I. D.C. LEFT ELEV.=85.578

FINISH GRADE ELEV 86.162

T.B.M. # 15839
60D. NAIL IN PINE TREE
STA. 17+120.946 S&A / 26.23m RT.
ELEV. = 86.798

FOR INFORMATIONAL PURPOSES ONLY

SHEET NUMBER	20
PARISH	VERNON
FEDERAL PROJECT	NH-06-01(015)
STATE PROJECT	417-01-0014
DESIGNED	JDH
CHECKED	TP
DETAILED	JH
CHECKED	JDH
DATE	DECEMBER 2001
SHEET	20

REVISION DESCRIPTION | NO. | DATE | BY

ROUTE LA 28
JUNCTION LA 8 – JUNCTION LA 121
PLAN AND PROFILE

EXAMPLE I - Page 2 of 11

NOTE: FOR GENERAL BRIDGE PLANS SEE SHEETS 112 AND 113.
FOR EMBANKMENT WIDENING DETAILS SEE SHEETS 2a AND 2b.

P & A CURVE DATA
PI STA. 17+399.191
Δ= 14°56'42.7" LT.
T = 167.726m
L = 333.547m
R = 1278.727m

S & A CURVE DATA
PI STA. 17+393.568
Δ= 14°55'10.5" LT.
T = 63.152m
L = 165.364m
R = 635.047m

REQ'D. DRAINAGE EXCAVATION
REQ'D CONSTRUCTION SERVITUDE
EXIST. R/W
TIE TO EXIST
TIE TO EXIST R/W
LIMITS OF CONSTRUCTION
PROJECTED & ADOPTED ℄
SURVEYED & ABANDONED ℄
℄ W.B.L.
℄ E.B.L.
S & A ℄
PC STA. 17+310.416 S&A
PT STA. 17+475.780 S&A
PC STA. 17+231.465
PT STA. 17+465.012
FOR DETAIL OF MEDIAN OPENING SEE SHEET 53
4.6m(15')
N83°13'39.9"E
N68°16'57.2"E
N68°18'29.4"E
3.0m
7.2m
1.2m
20.000m
SF
17+200
17+300
17+400
17+500
17+600

EXISTING BRIDGE STRUCTURE
NO. 4170105511
TO BE REMOVED
7-5.791 m SPANS

SILT FENCING ALONG LIMITS OF CONSTRUCTION

TOP WIDTH VARIES
* BOTTOM WIDTH VARIES 14 m WIDTH AT BRIDGE TRANSITION BOTTOM TO MATCH EXISTING CHANNEL
TYPICAL CHANNEL SECTION

SCALES:
1:600 H
1:60 V

REQ'D. 3-TYPE II GIRDER SPANS @ 14 m = 42 m
D.A. = 9.860 sq. km
Q 50 = 57.62 cu. m/sec.
DWSE = 83.828 m/M.S.L.
REFERENCE TIE @ STA. 17+376.358 S&A
T.B.M. # 15850
60D NAIL IN ELM TREE
STA. 17+552.459 / 18.67m LT.
ELEV. = 82.959

FOR INFORMATIONAL PURPOSES ONLY

FINISH GRADE ELEV 86.162
12 m APPROACH SLAB
VPI STA. 17+245.000 ELEV 86.000
12 m APPROACH SLAB
NOTE: FOR BRIDGE STATIONS AND ELEVATIONS REFER TO BRIDGE PLANS (SHEETS 112-116)
FINISH GRADE ELEV 86.000
0.000%
MEDIAN DITCH -0.357%
7-5.791 m SPANS
MEDIAN DITCH -0.233%
LEFT DITCH -0.352%
STA. 17+200 P.I. O.G. LEFT ELEV.=83.578
STA. 17+235 END MEDIAN DITCH ELEV.=85.486
STA. 17+250 END LEFT DITCH ELEV.=83.400
STA. 17+300 BEGIN MEDIAN DITCH ELEV 85.400
STA. 17+800 END MEDIAN DITCH ELEV.=84.700
EXISTING GROUND @ WBL
STA. 17+200 TO STA. 17+800
GENERAL EXCAVATION 1 616 m³
EMBANKMENT 43 443 m³
88
86
84
82
80

SHEET NUMBER 21
PARISH VERNON
FEDERAL PROJECT NH-06-01(015)
STATE PROJECT 417-01-0014
DESIGNED JDH
CHECKED TD
DETAILED JJK
CHECKED JDH
DATE DECEMBER 2001
SHEET 21
BY
REVISION DESCRIPTION
NO.
DATE

ROUTE LA 28
JUNCTION LA 8 -- JUNCTION LA 121
PLAN AND PROFILE

EXAMPLE I - Page 3 of 11

ALIGN OUTFALL CHANNEL FROM R.C. ARCH BOX TO MATCH EXISTING CHANNEL

TOP WIDTH VARIES

6 m MIN.

STA. 17+620 (RT. & LT.)
REQ'D. RIP RAP CHANNEL (15 kg)
(SEE STD. PLAN PD-01M)

17+600 17+700 17+800 17+900 18+000

SCALE 1:600

EXIST. R/W

SF

FOR DETAIL OF ARCH BOX CONNECTION SEE SPECIAL DETAIL CIP-TIEIN02 SHEET 89

STUB-IN SIDE DRAIN PIPES TO R.C.B.

FOR R.C.B. DETAILS SEE STANDARD PLAN C.C.S.M.-10-R-90°-1

LIMITS OF CONSTRUCTION

3.0m
7.2m
1.2m
20.000m

N 68°16'57.2" E ℄ W.B.L.

PROJECTED & ADOPTED ℄

N 68°18'29.4" E

SURVEYED & ABANDONED ℄

FOR DETAIL OF MEDIAN OPENING SEE SHEET 53

STA. 17+620
REMOVE HEADWALL EACH END OF ARCH BOX CULVERT
SEE SPECIAL DETAIL CIP-TIEIN02 SHEET 94

ALIGN INFLOW CHANNEL TO MATCH R.C.B.

MATCH EXIST. R/W P.I. TIE TO EXIST. R/W

REQ'D R/W

+000
70m

SCALES:
1:600 H
1:60 V

FINISH GRADE ELEV. 86.000

STA. 17+600
REQ'D. CB-01 @ MEDIAN
TOP=84.700
INV.=83.000
REQ'D. SIDE DRAIN PIPE
460 mm X 18 m

STA. 17+620
REQ'D. 2 - 3.000 mm X 2.400 mm X 5.8 m R.C. BOX (RT.)
REQ'D. 2 - 3.000 mm X 2.400 mm X 5.800 m R.C. BOX (LT.)
(BOX EXTENSIONS TO MATCH SLOPE OF EXISTING R.C.I. ARCH BOX)

STA. 17+640
REQ'D. CB-01 @ MEDIAN
TOP=84.700
INV.=83.000
REQ'D. SIDE DRAIN PIPE
460 mm X 18 m

FOR INFORMATIONAL PURPOSES ONLY

VPC STA 17+755.000
ELEV 86.000

VPT STA 17+895.000
ELEV 87.504

VPC STA 17+895.000
ELEV 87.504

VPI STA 17+825.000
ELEV 86.000

CURVE LEN=140.000

Q50 = 8.73 cumeters/s
VEL = 0.789 m/s
D.A. = 25.71 ha
HWE = 83.777
ΔH. = 0.091 m

STA. 17+200 TO STA. 17+800
GENERAL EXCAVATION 1 616 m³
EMBANKMENT 43 443 m³

STA. 17+800 TO STA. 18+400
GENERAL EXCAVATION 99 851 m³
EMBANKMENT 1 874 m³

0.000%
+2.148%
MEDIAN DITCH +0.550%
RIGHT DITCH +1.000%
LEFT DITCH +1.500%
MEDIAN DITCH +1.875%
RIGHT & LEFT DITCH +2.400%
LEFT DITCH +2.000%
S&A
EXIST. GRD. W.B.L.

F.L.=83.000
F.L.=82.800
F.L. RIGHT=82.061
F.L. LEFT=81.890

EXISTING GROUND @ W.B.L.

STA. 17+600 MEDIAN DITCH ELEV=84.700

STA. 17+640 BEGIN MEDIAN DITCH ELEV=84.700

STA. 17+700 BEGIN LEFT DITCH ELEV=82.500
BEGIN RIGHT DITCH ELEV=84.000

STA. 17+800 P.I. D.G. LEFT ELEV=84.000

STA. 17+840 P.I. D.G. MEDIAN ELEV=85.600

STA. 17+900 P.I. D.G. RIGHT & LEFT ELEV=86.000

STA. 18+000 P.I. D.G. MEDIAN ELEV=88.800
P.I. D.G. RT. & LT. ELEV=88.400

T.B.M. # 15859
600 MM. IN PINE TREE
STA. 17+968.475 S&A / 32.27m RT.
ELEV. = 95.526

FINISH GRADE ELEV. 89.394

92 90 88 86 84 82

17+600 17+700 17+800 17+900 18+000

SHEET NUMBER 22

PARISH VERNON
FEDERAL PROJECT NH-06-01(015)
STATE PROJECT 417-01-0014

DESIGNED JDH
CHECKED TD
DETAILED JH
CHECKED JDM
DATE DECEMBER 2001
SHEET 22

REVISION DESCRIPTION | NO. | DATE | BY

ROUTE LA 28
JUNCTION LA 8 – JUNCTION LA 121
PLAN AND PROFILE

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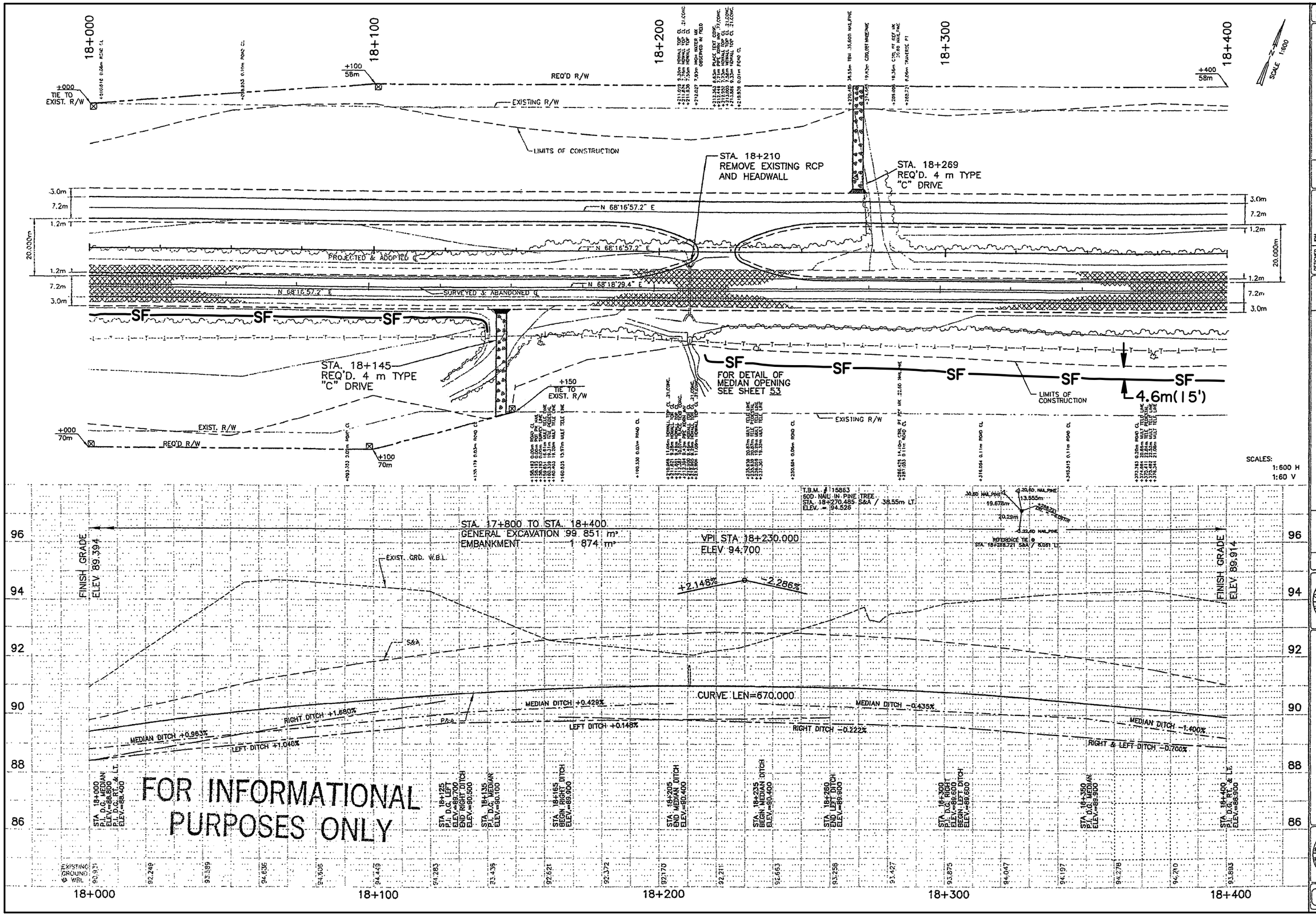


SHEET NUMBER	23
PARISH	VERNON
FEDERAL PROJECT	NH-06-01(015)
STATE PROJECT	417-01-0014
DESIGNED JDH	DATE DECEMBER 2001
CHECKED TD	SHEET 53
DETAILED JH	BY
CHECKED JDH	

REVISION DESCRIPTION | NO. | DATE

ROUTE LA 28
JUNCTION LA 8 – JUNCTION LA 121

PLAN AND PROFILE

EXAMPLE I - Page 5 of 11

PERMANENT EROSION CONTROL

Erosion Control Systems

Station	Station	Ditch Location	Length (meters)	Width (meters)	slope %	Vegetative Mulch Item No. 716-01-A 0.00% to 0.50% sq. meters	Slope Protection Item No. 720-01-A 0.51% to 1.50% Type A sq. meters	Slope Protection Item No. 720-01-B 1.51% to 2.50% Type B sq. meters	Flexible Channel Liner Item No. 720-01-C 2.51% to 3.00% Type C sq. meters	Flexible Channel Liner Item No. 720-01-D 3.01% to 6.00% Type D sq. meters	Flexible Channel Liner Item No. 720-01-E 6.01% to 8.00% Type E sq. meters	Flexible Channel Liner Item No. 720-01-F 8.01% to 10.00% Type F sq. meters
10+750	10+772.234	left	22.23	6.00	3.099%			598		133		
10+772.234	10+950.00	left	177.77	6.00	0.484%	1067						
10+975	11+197	left	217.01	6.00	0.530%		1302					
11+197	11+420	left	223.00	6.00	1.345%		1338					
11+445	11+700	left	255.00	6.00	1.255%		1530					
11+950	12+246	left	296.00	6.00	0.743%		1776					
12+246	12+320	left	74.00	6.00	0.370%	444						
12+340	12+560	left	220.00	6.00	2.636%				1320			
12+560	12+570	left	10.00	6.00	1.000%		60					
12+593	12+850	left	257.00	6.00	2.179%			1542				
12+900	13+050	left	150.00	6.00	1.167%		900					
13+050	13+200	left	150.00	6.00	2.167%			900				
13+325	13+360	left	35.00	6.00	2.857%				210			
13+360	13+493	left	133.00	6.00	3.459%					798		
13+493	13+650	left	157.00	6.00	0.764%		942					
13+650	13+800	left	150.00	6.00	0.533%		900					
14+100	14+250	left	150.00	6.00	2.333%			900				
14+250	14+400	left	150.00	6.00	0.933%		900					
14+400	14+475	left	75.00	6.00	2.000%			450				
14+545	14+650	left	105.00	6.00	1.429%		630					
14+650	14+800	left	150.00	6.00	1.333%		900					
14+800	15+000	left	200.00	6.00	3.250%					1200		
15+250	15+350	left	100.00	6.00	4.000%					600		
15+350	15+600	left	250.00	6.00	1.680%			1500				
15+600	15+700	left	100.00	6.00	1.500%		600					
15+700	16+000	left	300.00	6.00	0.267%	1800						
16+000	16+109	left	109.00	6.00	1.927%			654				
16+109	16+140	left	31.00	6.00	1.936%			186				
16+140	16+200	left	60.00	6.00	1.333%		360					
16+200	16+470.5	left	270.50	6.00	2.847%				1623			
16+470.5	16+530	left	59.50	6.00	0.504%							
16+530	16+595	left	65.00	6.00	0.923%		390					
16+595	16+725	left	130.00	6.00	1.769%			780				
16+725	16+880	left	155.00	6.00	1.548%			930				
16+880	16+925	left	45.00	6.00	1.111%		270					
16+975	17+200	left	225.00	6.00	2.424%			1350				
17+200	17+250	left	50.00	6.00	0.352%	300						
17+700	17+800	left	100.00	6.00	1.500%		600					
17+800	17+900	left	100.00	6.00	2.000%			600				
17+900	18+000	left	100.00	6.00	2.400%			600				
18+000	18+125	left	125.00	6.00	1.040%		750					
18+125	18+260	left	135.00	6.00	0.148%	810						
18+300	18+400	left	100.00	6.00	0.700%		600					
18+400	18+600	left	200.00	6.00	2.150%			1200				
18+600	18+650	left	50.00	6.00	3.200%					300		
18+650	18+775	left	125.00	6.00	1.600%			750				
18+775	18+850	left	75.00	6.00	0.667%		450					
18+900	19+100	left	200.00	6.00	0.200%	1200						
19+100	19+300	left	200.00	6.00	0.800%		1200					
19+300	19+475	left	175.00	6.00	1.543%			1050				
19+950	20+000	left	50.00	6.00	4.800%					300		
20+000	20+100	left	100.00	6.00	1.000%		600					
20+100	20+200	left	100.00	6.00	0.800%		600					
20+200	20+300	left	100.00	6.00	1.300%		600					
20+300	20+400	left	100.00	6.00	2.300%			600				
20+400	20+496	left	96.00	6.00	4.271%					576		
20+496	20+550	left	54.00	6.00	0.370%	324						
20+640	20+660	left	20.00	6.00	0.200%	120						
20+700	20+800	left	100.00	6.00	2.300%			600				
20+800	20+920	left	120.00	6.00	1.667%			720				
20+920	21+025	left	105.00	6.00	4.667%					630		
21+170	21+250	left	80.00	6.00	0.813%		480					
21+250	21+400	left	150.00	6.00	1.433%		900					
21+400	21+600	left	200.00	6.00	2.480%			1200				
21+600	21+650	left	50.00	6.00	2.480%			300				
21+650	21+700	left	50.00	6.00	4.000%					300		
21+700	21+740	left	40.00	6.00	6.250%						240	
21+800	21+900	left	100.00	6.00	3.900%					600		
21+900	22+050	left	150.00	6.00	0.533%		900					
22+050	22+150	left	100.00	6.00	2.700%				600			
			Totals for Left Ditch			6065	20478	16812	3753	5437	240	
			Totals for Median Ditch (sheet 3d)			21882	35266	26424	3284	1188	840	
			Totals for Right Ditch (sheet 3d)			2250	16748	20821	2757	1848	0	
			Project Totals			30197	72492	64057	9794	8453	1080	

SHEET NUMBER 3e

PARISH VERNON
FEDERAL PROJECT NH-06-01(015)
STATE PROJECT 417-01-0014

DESIGNED JDH
CHECKED TD
DETAILED JH
CHECKED JDH
DATE SHEET DECEMBER 2001

REVISION DESCRIPTION | NO. | DATE

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

ROUTE LA 28
JUNCTION LA 8 -- JUNCTION LA 121

SUMMARY SHEET

EXAMPLE I - Page 6 of 11

TEMPORARY EROSION & SEDIMENT CONTROL STRUCTURE LOCATIONS ▲

STATION	TEMPORARY INLET SILT TRAP	TEMP. SEDIMENT CHECK DAMS					
		LT. DITCH		MEDIAN DITCH		RT. DITCH	
	MEDIAN DITCH	HAY	STONE	HAY	STONE	HAY	STONE
10+770		1		1			
10+790						1	
10+830		1		1			
10+890		1		1			
11+010				1			
11+030		1					
11+070				1			
11+090		1					
11+130				1			
11+150		1					
11+180			1				
11+197	1						
11+210			1				
11+220				1			
11+240		1					
11+280				1			
11+300		1				1	
11+340				1			
11+360		1					
11+410						1	
11+446	1						
11+455							
11+480			1	1			
11+520		1					
11+540				1			
11+580		1					
11+600				1			
11+640		1					
11+660				1			
11+720				1			
11+780				1			
11+840				1			
12+000				1			
12+010		1				1	
12+060				1			
12+070		1				1	
12+120				1			
12+130		1				1	
12+180				1			
12+190						1	
12+235		1	1				1
12+246	1						
12+255			1				
12+260		1					
12+320				1			
12+380				1			
12+400		1					
12+440				1			
12+460		1					
12+500				1			
12+520		1					
12+550			1				
12+560	1						
12+650		1		1			
12+710		1		1			
12+770		1		1			
12+830		1		1			
12+863	1						
12+840			1				
12+845							1
12+880						1	
12+930		1					
12+940		1		1			
12+990		1					
13+010	1						
13+060						1	
13+100				1			
13+110		1					
13+120						1	
13+150	1						
13+170		1					
13+180						1	
13+200			1	1			1
13+225					1		
13+285					1		
13+310				1			
13+330			1				
13+350		1					
13+360	1						
13+380							1
13+410		1		1		1	
13+470		1				1	
13+493	1						
13+510				1			
13+530		1				1	
13+570				1			
13+590		1				1	
13+630				1			
13+710		1				1	
13+750				1			
13+770		1				1	
13+795			1				1
13+810				1			
13+870				1			
13+937	1						
13+977	1						
14+040				1			
14+100				1			
14+105			1				1
14+160		1		1		1	
14+220		1		1		1	
14+280		1		1		1	
14+340		1		1		1	
14+460		1		1		1	
14+470			1				
14+520				1		1	
14+535							
14+545	1						1

TEMPORARY EROSION & SEDIMENT CONTROL STRUCTURE LOCATIONS ▲

STATION	TEMPORARY INLET SILT TRAP	TEMP. SEDIMENT CHECK DAMS					
		LT. DITCH		MEDIAN DITCH		RT. DITCH	
	MEDIAN DITCH	HAY	STONE	HAY	STONE	HAY	STONE
14+660				1		1	
14+710		1					
14+720				1		1	
14+770		1					
14+780				1		1	
14+800		1		1		1	
14+900		1		1		1	
14+960		1		1		1	
14+995			1				1
15+020				1			
15+030	1						
15+130	1						
15+180				1			
15+240				1			
15+255			1				1
15+280		1				1	
15+300				1			
15+340		1				1	
15+360				1			
15+400		1				1	
15+420				1			
15+460		1				1	
15+485	1						
15+520		1				1	
15+540				1			
15+580		1				1	
15+600				1			
15+640		1				1	
15+660				1			
15+760		1		1		1	
15+820		1		1		1	
15+835	1						
15+880		1				1	
15+930				1			
15+940		1				1	
15+990				1			
16+000		1				1	
16+050				1			
16+060		1				1	
16+109	1						
16+160						1	
16+170				1			
16+200		1					
16+230				1			
16+250		1				1	
16+290				1			
16+320		1				1	
16+350				1			
16+380		1				1	
16+410				1			
16+440		1				1	
16+460			1				1
16+471	1						
16+480			1				
16+570				1			
16+630				1			
16+660		1					
16+670						1	
16+690				1			
16+750				1			
16+780		1				1	
16+810				1			
16+840		1				1	
16+870				1			
16+880	1						
16+900						1	
17+000		1		1			
17+060		1		1			
17+110		1		1			
17+165	1						
17+180		1					
17+225			1				
17+360				1			
17+420				1			
17+480				1			
17+540				1			
17+600	1						
17+640	1						
17+705			1				1
17+720				1			
17+760		1				1	
17+780				1			
17+820		1				1	
17+840				1			
17+880		1				1	
17+900				1			
17+940		1				1	
17+960				1			
18+000		1				1	
18+020				1			
18+060		1				1	
18+080				1			
18+120		1					
18+140				1			
18+180		1					
18+220						1	
18+280						1	
18+340		1					
18+360				1			
18+400		1				1	
18+420				1			
18+460		1				1	
18+480				1			
18+520		1				1	
18+540				1			
18+580		1				1	
18+600				1			
18+640		1				1	
18+650	1						

TEMPORARY EROSION & SEDIMENT CONTROL STRUCTURE LOCATIONS ▲

STATION	TEMPORARY INLET SILT TRAP	TEMP. SEDIMENT CHECK DAMS					
		LT. DITCH		MEDIAN DITCH		RT. DITCH	
	MEDIAN DITCH	HAY	STONE	HAY	STONE	HAY	STONE
18+700		1				1	
18+740				1			
18+760		1				1	
18+800	1						
18+820		1				1	
18+845			1				1
18+920		1					
18+980		1		1			
19+040		1		1		1	
19+100	1					1	
19+160						1	
19+200				1			
19+220						1	
19+280				1			
19+320				1			
19+360		1				1	
19+380				1			
19+420		1				1	
19+440				1			
19+455	1						
19+465			1				1
19+490							1
19+496	1						
19+540				1			
19+560						1	
19+600				1			
19+620						1	
19+660				1			
19+680						1	
19+720				1			
19+740						1	
19+780				1			
19+840				1			
19+850						1	
19+900				1			
19+955							
19+960				1			
18+980		1				1	
20+020				1			
20+040		1				1	
20+160		1				1	
20+180				1			
20+220		1				1	
20+240				1			
20+270							1
20+280		1					
20+283	1						
20+340		1					
20+350				1			
20+400		1					
20+410				1			
20+460		1					
20+470				1			
20+496	1						
20+520		1					
20+545			1				
20+560				1			
20+590						1	
20+620				1			
20+680				1			
20+705			1				1
20+740		1		1		1	
20+800		1		1		1	
20+860		1		1		1	
20+980				1		1	
21+005							1
21+015	1						
21+050				1			
21+110				1			
21+230		1		1		1	
21+290		1		1		1	
21+350	1	1				1	
21+410		1				1	
21+430				1			
21+460							1
21+470	1	1					
21+530		1					
21+580				1			
21+590		1					
21+640				1			
21+650		1					
21+695			1				
21+700				1			
21+710		1					
21+738	1						
21+800			1	1			1
21+860				1			
21+870		1				1	
21+920				1			
21+930		1				1	
21+990		1				1	
22+100		1					
21+145			1				
22+110				1		1	
22+170						1	
22+195							1
TOTALS	33*	118**	25***	139**	2***	97**	20***

* TEMPORARY INLET SILT TRAP (HAY OR STRAW BALES) 33 X 7BALES/TRAP = 231 BALES
PAY ITEM: 204-02 TEMPORARY HAY OR STRAW BALES

** PAY ITEM: 204-05-A TEMPORARY SEDIMENT CHECK DAM (HAY) 354 EACH

*** PAY ITEM: 204-05-B TEMPORARY SEDIMENT CHECK DAM (STONE) 47 EACH

TEMPORARY SILT FENCING (ITEM 204-06) ▲

FROM STATION	TO STATION	SIDE CL	LIN. METERS
11+175	11+200	RT	25
12+825	12+925	LT	100
13+200	13+400	LT	200
13+825	14+100	LT	275
13+900	14+075	RT	175
14+475	14+600	LT	125
15+000	15+250	LT	250
15+025	15+250	RT	225
17+175	17+750	LT	575
17+475	17+675	RT	200
18+775	19+025	LT	250
19+100	19+200	LT	100
19+425	19+600	LT	175
19+675	19+975	LT	300
19+850	19+950	RT	100
20+375	20+525	RT	150
20+500	20+700	LT	200
20+625	20+675	RT	50
20+950	21+125	LT	175
21+475	21+825	RT	350
21+650	21+825	LT	175
22+150	22+225	LT	75
10+190	—	LT. DITCH	5
11+205	—	LT. DITCH	5
11+450	—	LT. DITCH	5
12+240	—	LT. DITCH	5
12+240	—	RT. DITCH	5
12+555	—	LT. DITCH	5
13+200	—	LT. DITCH	5
13+200	—	RT. DITCH	5
13+230	—	MEDIAN DITCH	5
13+285	—	MEDIAN DITCH	5
13+800	—	RT. DITCH	5
13+800	—	LT. DITCH	5
14+100	—	RT. DITCH	5
14+100	—	LT. DITCH	5
14+475	—	LT. DITCH	5
14+540	—	RT. DITCH	5
15+000	—	LT. DITCH	5
15+000	—	RT. DITCH	5
15+250	—	RT. DITCH	5
15+250	—	LT. DITCH	5
16+105	—	RT. DITCH	5
16+105	—	LT. DITCH	5
16+460	—	LT. DITCH	5
16+460	—	RT. DITCH	5
18+475	—	LT. DITCH	5
17+230	—	LT. DITCH	5
17+700	—	LT. DITCH	5
17+700	—	RT. DITCH	5
18+470	—	LT. DITCH	5
19+470	—	RT. DITCH	5
19+485	—	RT. DITCH	5
19+950	—	LT. DITCH	5
19+950	—	RT. DITCH	5
20+275	—	LT. DITCH	5
20+550	—	LT. DITCH	5
20+700	—	LT. DITCH	5
20+700	—	RT. DITCH	5
21+010	—	RT. DITCH	5
21+485	—	RT. DITCH	5
21+695	—	LT. DITCH	5
21+805	—	RT. DITCH	5
21+805	—	LT. DITCH	5
22+150	—	LT. DITCH	5
22+150	—	SPEC. LT. DITCH	5
22+200	—	RT. DITCH	5
		TOTAL	4,475

▲ LOCATIONS SUBJECT TO CHANGE BY PROJECT ENGINEER TO ACCOMMODATE FIELD CONDITIONS.

SHEET NUMBER 3f

PARISH: VERNON
FEDERAL PROJECT: NH-06-01(015)
STATE PROJECT: 417-01-0014

DESIGNED JDH
CHECKED TD
DETAILED JN
CHECKED JDH
DATE DECEMBER 2001
SHEET 3a

NO. | DATE | REVISION DESCRIPTION | BY

ROUTE LA 28
JUNCTION LA 8 – JUNCTION LA 121

SUMMARY SHEET

EXAMPLE: RIPRAP CHANNEL

RIP RAP CHANNEL (TYPE 2)

STATION	STATION	SIDE	DESCRIPTION	LENGTH (meters)	WIDTH (meters)	DEPTH (meters)	THICKNESS (mm)	SQ. METERS
10+373	10+410	Lt.	RIP RAP (15kg)	40	8.4	0.6	400	336
10+410	10+450	Lt.	RIP RAP (15kg)	40	4.25	0.6	400	170
13+800	13+800	Lt.	RIP RAP (15kg)	5.5	3.6	0.3	400	20
15+375	15+395	Lt.	RIP RAP (15kg)	40	7.2	0.6	400	288
16+970	17+005	Lt.	RIP RAP (15kg)	35	4.25	0.6	400	149
10+500	10+525	Rt.	RIP RAP (15kg)	25	4.25	0.6	400	106
13+743	13+748	Rt.	RIP RAP (15kg)	28	4.25	0.6	400	119
14+025	14+050	Rt.	RIP RAP (15kg)	25	4.25	0.6	400	106
15+277	15+287	Rt.	RIP RAP (15kg)	10	4.25	0.6	400	42
15+282	15+283	Rt.	RIP RAP (15kg)	33	3.2	0.6	400	106
15+450	15+475	Rt.	RIP RAP (15kg)	25	4.25	0.6	400	106
16+300	16+325	Rt.	RIP RAP (15kg)	25	4.25	0.6	400	106
Total								1654

See Standard Plan PD-01M

SHEET NUMBER
PARISH | FEDERAL PROJECT | STATE PROJECT
DESIGNED | DETAILED | DATE
CHECKED | CHECKED | SHEET
REVISION DESCRIPTION | BY | DATE | NO.

A — 14 m, 14 m, 14 m — 100mm SOLID WHITE STRIPE WITH CHANNELING DEVICES @ 14m C.C.

B — 14 m, 14 m, 14 m — 100mm SOLID YELLOW STRIPE WITH CHANNELING DEVICES @ 14m C.C.

C — 3m, 3m, 3m — 100mm SOLID WHITE STRIPE WITH CHANNELING DEVICES @ 3m C.C.

D — 3m, 3m, 3m — 100mm SOLID YELLOW STRIPE WITH CHANNELING DEVICES @ 3m C.C.

E — 3m, 3m, 3m — CHANNELING DEVICES @ 3m C.C.

F — 14 m, 14 m — CHANNELING DEVICES @ 14m C.C.

G — 3m, 10m, 3m, 10m, 3m — 100mm BROKEN WHITE ℄ STRIPE

H — 0.6m, 1.8m, 0.6m — 100mm DASHED YELLOW STRIPE

I — 100mm SOLID DOUBLE YELLOW STRIPE

J — 100mm SOLID WHITE STRIPE

K — 300mm SOLID WHITE STRIPE

1 ROAD CONSTRUCTION 1500 FT.
2 ROAD CONSTRUCTION 1000 FT.
3 ROAD CONSTRUCTION 500 FT.
4 ROAD CLOSED 500 FT.
5 END CONSTRUCTION
6 HWY. WORKERS Give em a BRAKE
7 ROAD CONSTRUCTION AHEAD
8 ROAD CLOSED
9 LANE CLOSED
10 TYPE 3 BARRICADE
11 ROAD CLOSED
11A DETOUR 1000 FT
12 DETOUR 1000 FT
12A DETOUR 1000 FT
13 XX M.P.H. — SEE NOTE 4
14 XX M.P.H. — SEE NOTE 4
15
16 SPEED ZONE AHEAD
17 SPEED LIMIT 45
18 ROAD CONSTRUCTION NEXT 7 MILES
19 DETOUR
20 DETOUR
21 HIGHER TRAFFIC FINES IN WORK ZONE
22
23
24
25A RIGHT LANE CLOSED 1500 FT.
25B RIGHT LANE CLOSED 1/2 MILE
26A TYPE 'B' — LEFT LANE CLOSED 1500 FT.
26B LEFT LANE CLOSED 1/2 MILE
27
28 STOP
29 FLASHING ARROW DISPLAY
30 LEFT LANE CLOSED 1000 FT.

NOTE: REMOVE TEMPORY EROSION CONTROLS AFTER SEEDING AND ESTABLISHMENT OF VEGETATION.

SEQUENCE OF CONSTRUCTION - PHASE I

STAGE 1

PLACE CONSTRUCTION SIGNING AND INSTALL SILT FENCE; PERFORM CLEARING & GRUBBING OPERATION; MAINTAIN TWO WAY TRAFFIC ON EXISTING ROADWAY, INTERSECTING ROADWAYS AND DRIVEWAYS.

STAGE 2

EXTEND AND/OR CONSTRUCT CROSS DRAINS WHICH WILL BE UNDER NEW WESTBOUND ROADWAY; INSTALL EROSION PROTECTION FOR MEDIAN INLETS; PERFORM EXCAVATION AND EMBANKMENT OPERATION FOR WESTBOUND ROADWAY, INTERSECTING ROADWAYS ON NORTH SIDE OF WESTBOUND ROADWAY AND NORTH 1/2 OF MEDIAN OPENINGS; INSTALL CHECK DAMS AFTER DITCH GRADING; CONSTRUCT EMBANKMENT FOR ROADWAY TRANSITION AT EAST AND WEST END OF PROJECT; CONSTRUCT BRIDGES ON WESTBOUND ROADWAY WITH PERMANENT GUARDRAILS ON EAST END AND TEMPORARY GUARDRAILS ON WEST END OF THE BRIDGES.

STAGE 3

CONSTRUCT BASE AND BINDER COURSE ON WESTBOUND ROADWAY, INTERSECTING ROADWAYS ON NORTH SIDE, NORTH 1/2 OF MEDIAN OPENINGS AND ROADWAY TRANSITION AT EAST AND WEST END OF PROJECT; BEFORE SWITCHING TRAFFIC TO NEW ROADWAY, PLACE TEMPORARY PAVEMENT STRIPES AND CONSTRUCTION SIGNING FOR TWO WAY TRAFFIC ON NEW ROADWAY.

SEQUENCE OF CONSTRUCTION - PHASE II

STAGE 1

DETOUR TWO WAY TRAFFIC AT EAST AND WEST END OF PROJECT ON TO NEW ROADWAY, MAINTAIN TWO WAY TRAFFIC ON NEW ROADWAY, DRIVEWAYS AND INTERSECTING ROADWAYS.

STAGE 2

REMOVE EXISTING PAVEMENT AND BASE ON EXISTING ROADWAY; EXTEND AND/OR CONSTRUCT CROSS DRAINS UNDER EXISTING ROADWAY; PERFORM EXCAVATION AND EMBANKMENT OPERATION FOR EASTBOUND ROADWAY, INTERSECTING ROADWAYS AND SOUTH 1/2 OF MEDIAN OPENINGS; INSTALL CHECK DAMS AFTER DITCH GRADING; CONSTRUCT BRIDGES ON EASTBOUND ROADWAY WITH PERMANENT GUARDRAIL ON WEST END OF THE BRIDGES.

STAGE 3

CONSTRUCT BASE, BINDER AND WEARING COURSES ON EASTBOUND ROADWAY, INTERSECTING ROADWAYS ON SOUTH SIDE AND SOUTH 1/2 OF MEDIAN OPENINGS.

STAGE 4

PLACE PERMANENT PAVEMENT STRIPING AND CONSTRUCTION SIGNING ON THE EASTBOUND LANES.

SEQUENCE OF CONSTRUCTION - PHASE III

STAGE 1

DIVERT EASTBOUND TRAFFIC AT WEST END OF PROJECT ON TO NEW EASTBOUND LANES.

STAGE 2

REMOVE TEMPORARY GUARDRAILS ON WEST END OF THE BRIDGES ON THE WESTBOUND LANES.

STAGE 3

CONSTRUCT WEARING COURSE FOR WESTBOUND LANES UNDER TRAFFIC; PLACE PERMANENT STRIPING ON THE WESTBOUND LANES.

FOR INFORMATIONAL PURPOSES ONLY

CONSTRUCTION LEGEND

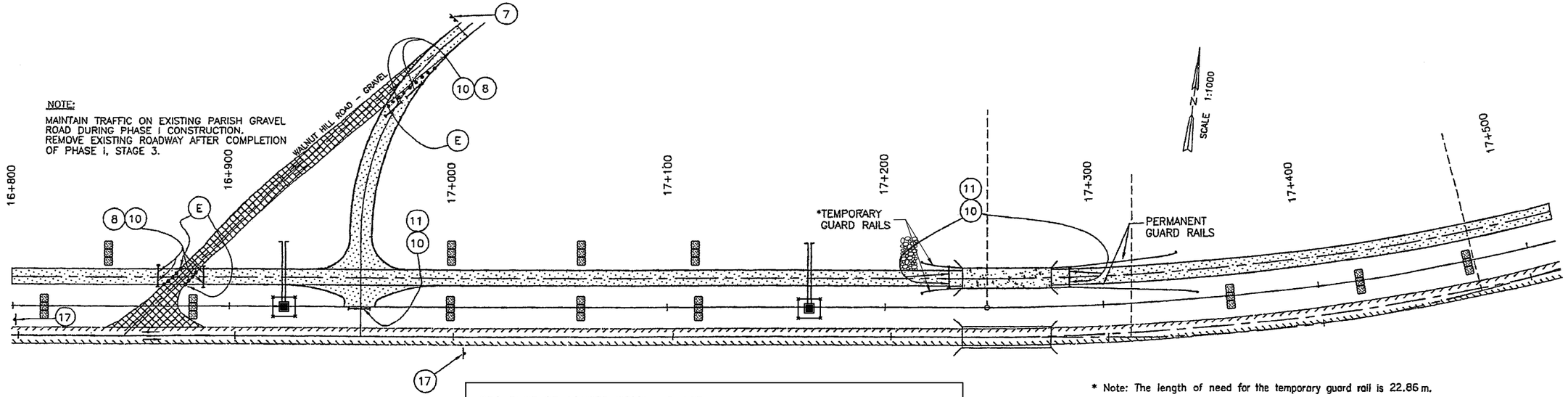
- REMOVAL THIS PHASE
- CONSTRUCT DETOUR OR TEMPORARY ASPHALT PAVING THIS PHASE
- CONSTRUCTION THIS PHASE
- EXISTING ROADWAY
- NEW BRIDGE CONSTRUCTION THIS PHASE
- NEW CROSS DRAIN CONSTRUCTION THIS PHASE
- TEMPORARY CONNECTION
- —SF—SF— - SILT FENCE
- TEMPORARY BERM
- SEDIMENT CHECK DAM (STONE)
- STABILIZED CONSTRUCTION ENTRANCE
- HAY BALES OR SEDIMENT CHECK DAM (HAY)
- INLET PROTECTION
- TEMPORARY SLOPE DRAIN

GENERAL NOTES:

1) LANE WIDTH OF 3 m IS TO BE MAINTAINED AT ALL TIMES DURING CONSTRUCTION.
2) TEMPORARY STRIPING ON ASPHALTIC CONCRETE PAVEMENT SHALL BE TYPE I TAPE OR PAINT. DO NOT USE PAINT ON THE WEARING COURSE UNLESS GIVEN PRIOR APPROVAL BY THE PROJECT ENGINEER.
3) DURING CONSTRUCTION THE CONTRACTOR IS TO MAINTAIN TEMPORARY DRIVES FROM THE RESIDENCES TO THE NEW ROADWAY AND/OR THE EXISTING ROADWAY AT NO DIRECT PAY.
4) ADVISORY SPEED PLATE (W13-1): RECOMMENDED SPEED TO BE DETERMINED IN THE FIELD.

SHEET NUMBER 63
PARISH: VERNON
FEDERAL PROJECT: NH-06-01(015)
STATE PROJECT: 417-01-0014
DESIGNED: P.E. KAJOR
CHECKED: J.D.HETHERWICK
DETAILED: J.D.HARE
CHECKED: J.D.HETHERWICK
DATE SHEET: DECEMBER 2001
BY
REVISION DESCRIPTION
NO.
DATE

ROUTE LA 28
JUNCTION LA 8 - JUNCTION LA 121
LEGEND-STRIPING, SIGNS & BARRICADES



SEQUENCE OF CONSTRUCTION - PHASE I

STAGE I

PLACE CONSTRUCTION SIGNING AND INSTALL SILT FENCE; PERFORM CLEARING & GRUBBING OPERATION; MAINTAIN TWO WAY TRAFFIC ON EXISTING ROADWAY. INTERSECTING ROADWAYS AND DRIVEWAYS.

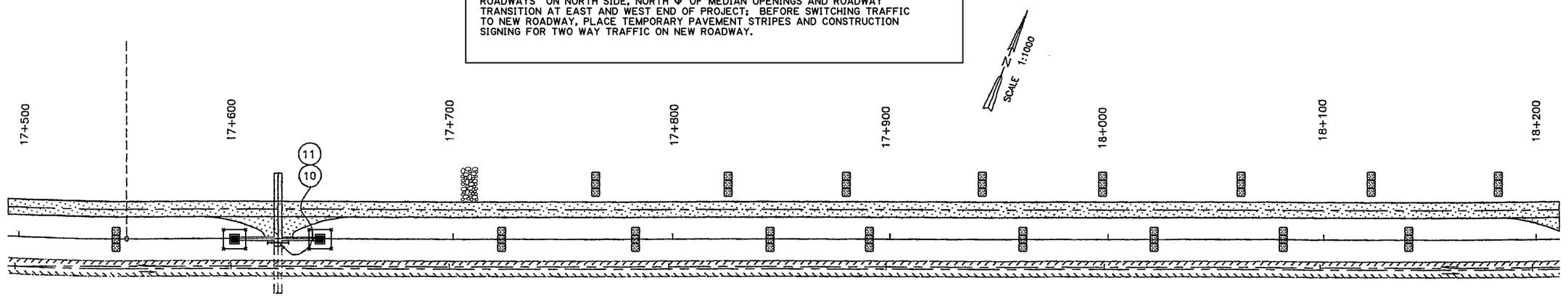
STAGE 2

EXTEND AND/OR CONSTRUCT CROSS DRAINS WHICH WILL BE UNDER NEW WESTBOUND ROADWAY; INSTALL EROSION PROTECTION FOR MEDIAN INLETS; PERFORM EXCAVATION AND EMBANKMENT OPERATION FOR WESTBOUND ROADWAY. INTERSECTING ROADWAYS ON NORTH SIDE OF WESTBOUND ROADWAY AND NORTH ½ OF MEDIAN OPENINGS; INSTALL CHECK DAMS AFTER DITCH GRADING; CONSTRUCT EMBANKMENT FOR ROADWAY TRANSITION AT EAST AND WEST END OF PROJECT; PROVIDE TEMPORARY SLOPE AND/OR CHANNEL STABILIZATION; CONSTRUCT BRIDGES ON WESTBOUND ROADWAY WITH PERMANENT GUARDRAILS ON EAST END AND TEMPORARY GUARDRAILS ON WEST END OF THE BRIDGES.

STAGE 3

CONSTRUCT BASE AND BINDER COURSE ON WESTBOUND ROADWAY, INTERSECTING ROADWAYS ON NORTH SIDE, NORTH ◆ OF MEDIAN OPENINGS AND ROADWAY TRANSITION AT EAST AND WEST END OF PROJECT; BEFORE SWITCHING TRAFFIC TO NEW ROADWAY, PLACE TEMPORARY PAVEMENT STRIPES AND CONSTRUCTION SIGNING FOR TWO WAY TRAFFIC ON NEW ROADWAY.

* Note: The length of need for the temporary guard rail is 22.86 m.
Cost of temporary guard rail to be paid for under item S-102 in entirety.



NOTES:

1) FOR LEGEND, SEE SHEET NO. 58.

2) MINIMUM CONSTRUCTION SIGNING. ANY ADDITIONAL SIGNS SHOWN IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND REQUIRED BY THE PROJECT ENGINEER, SHALL BE INSTALLED AT NO ADDITIONAL COST.

3) ALL EDGE LINES, LANE LINES AND CENTERLINES SHALL BE MARKED WITH THE APPROPRIATE COLOR MARKINGS. TEMPORARY PAVEMENT MARKINGS MAY BE EITHER TAPE OR PAINTED STRIPES EXCEPT ON BRIDGE DECKS OR OTHER PERMANENT SURFACES WHERE REMOVABLE TAPE MUST BE USED FOR TEMPORARY MARKINGS. MARKINGS SHALL BE MAINTAINED IN GOOD CONDITION BY THE CONTRACTOR AND SHALL BE REFURBISHED WHEN NEEDED AND WHEN REQUESTED BY THE PROJECT ENGINEER.

4) LOCATION OF EROSION AND SEDIMENT CONTROL DEVICES ARE SHOWN FOR INITIAL WORK. NO ADDITIONAL PAYMENT WILL BE MADE FOR MOVING OF THESE DEVICES AT DIFFERENT SEQUENCES OF CONSTRUCTION.

FOR INFORMATIONAL PURPOSES ONLY

SHEET NUMBER 69

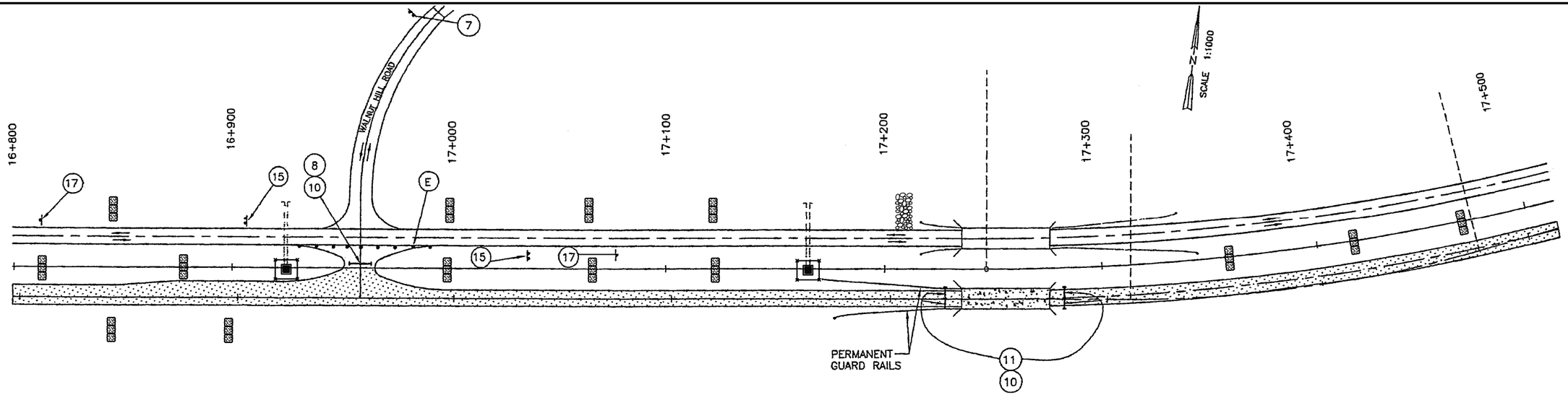
PARISH: VERNON
FEDERAL PROJECT: NH-06-01(015)
STATE PROJECT: 417-01-0014

DESIGNED: P.E. KAJOR
CHECKED: J.D.HETHERWICK
DETAILED: J.D. HAISE
CHECKED: J.D.HETHERWICK
DATE: DECEMBER 2001
SHEET

NO. | DATE | BY | REVISION DESCRIPTION

ROUTE LA 28
JUNCTION LA 8 – JCT. LA 121

CONSTRUCTION SEQUENCING & SIGNING



SEQUENCE OF CONSTRUCTION - PHASE II

STAGE 1

DETOUR TWO WAY TRAFFIC AT EAST AND WEST END OF PROJECT ON TO NEW ROADWAY, MAINTAIN TWO WAY TRAFFIC ON NEW ROADWAY, DRIVEWAYS AND INTERSECTING ROADWAYS.

STAGE 2

REMOVE EXISTING PAVEMENT AND BASE ON EXISTING ROADWAY; EXTEND AND/OR CONSTRUCT CROSS DRAINS UNDER EXISTING ROADWAY; PERFORM EXCAVATION AND EMBANKMENT OPERATION FOR EASTBOUND ROADWAY, INTERSECTING ROADWAYS AND SOUTH ½ OF MEDIAN OPENINGS; INSTALL CHECK DAMS AFTER DITCH GRADING; PROVIDE TEMPORARY SLOPE AND/OR CHANNEL STABILIZATION; CONSTRUCT BRIDGES ON EASTBOUND ROADWAY WITH PERMANENT GUARDRAIL ON WEST END OF THE BRIDGES.

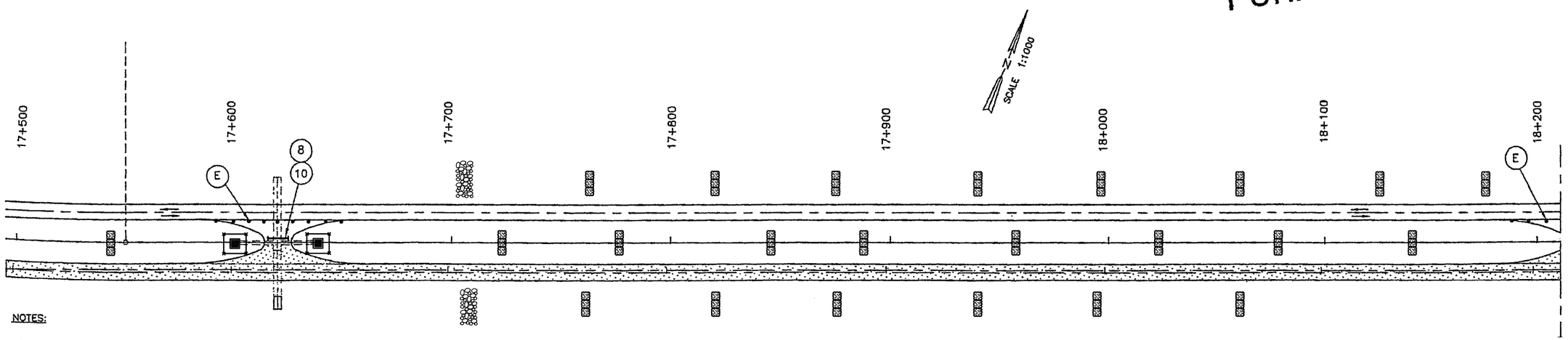
STAGE 3

CONSTRUCT BASE, BINDER AND WEARING COURSES ON EASTBOUND ROADWAY, INTERSECTING ROADWAYS ON SOUTH SIDE AND SOUTH ½ OF MEDIAN OPENINGS.

STAGE 4

PLACE PERMANENT PAVEMENT STRIPING AND CONSTRUCTION SIGNING ON THE EASTBOUND LANES.

FOR INFORMATIONAL PURPOSES ONLY



NOTES:

1) FOR LEGEND, SEE SHEET NO. 58.

2) MINIMUM CONSTRUCTION SIGNING. ANY ADDITIONAL SIGNS SHOWN IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND REQUIRED BY THE PROJECT ENGINEER, SHALL BE INSTALLED AT NO ADDITIONAL COST.

3) ALL EDGE LINES, LANE LINES AND CENTERLINES SHALL BE MARKED WITH THE APPROPRIATE COLOR MARKINGS. TEMPORARY PAVEMENT MARKINGS MAY BE EITHER TAPE OR PAINTED STRIPES EXCEPT ON BRIDGE DECKS OR OTHER PERMANENT SURFACES WHERE REMOVABLE TAPE MUST BE USED FOR TEMPORARY MARKINGS. MARKINGS SHALL BE MAINTAINED IN GOOD CONDITION BY THE CONTRACTOR AND SHALL BE REFURBISHED WHEN NEEDED AND WHEN REQUESTED BY THE PROJECT ENGINEER.

4) LOCATION OF EROSION AND SEDIMENT CONTROL DEVICES ARE SHOWN FOR INITIAL WORK. NO ADDITIONAL PAYMENT WILL BE MADE FOR MOVING OF THESE DEVICES AT DIFFERENT SEQUENCES OF CONSTRUCTION.

SHEET NUMBER 78

PARISH: VERNON
FEDERAL PROJECT: NH-06-01(015)
STATE PROJECT: 417-01-0014

DESIGNED P.E. MAJOR
CHECKED J.D.HETHERWICK
DETAILED J.D. HANSE
CHECKED J.D.HETHERWICK
DATE SHEET DECEMBER 2001

REVISION DESCRIPTION | NO. | DATE | BY

ROUTE LA 28
JUNCTION LA 8 – JCT. LA 121

CONSTRUCTION SEQUENCING & SIGNING

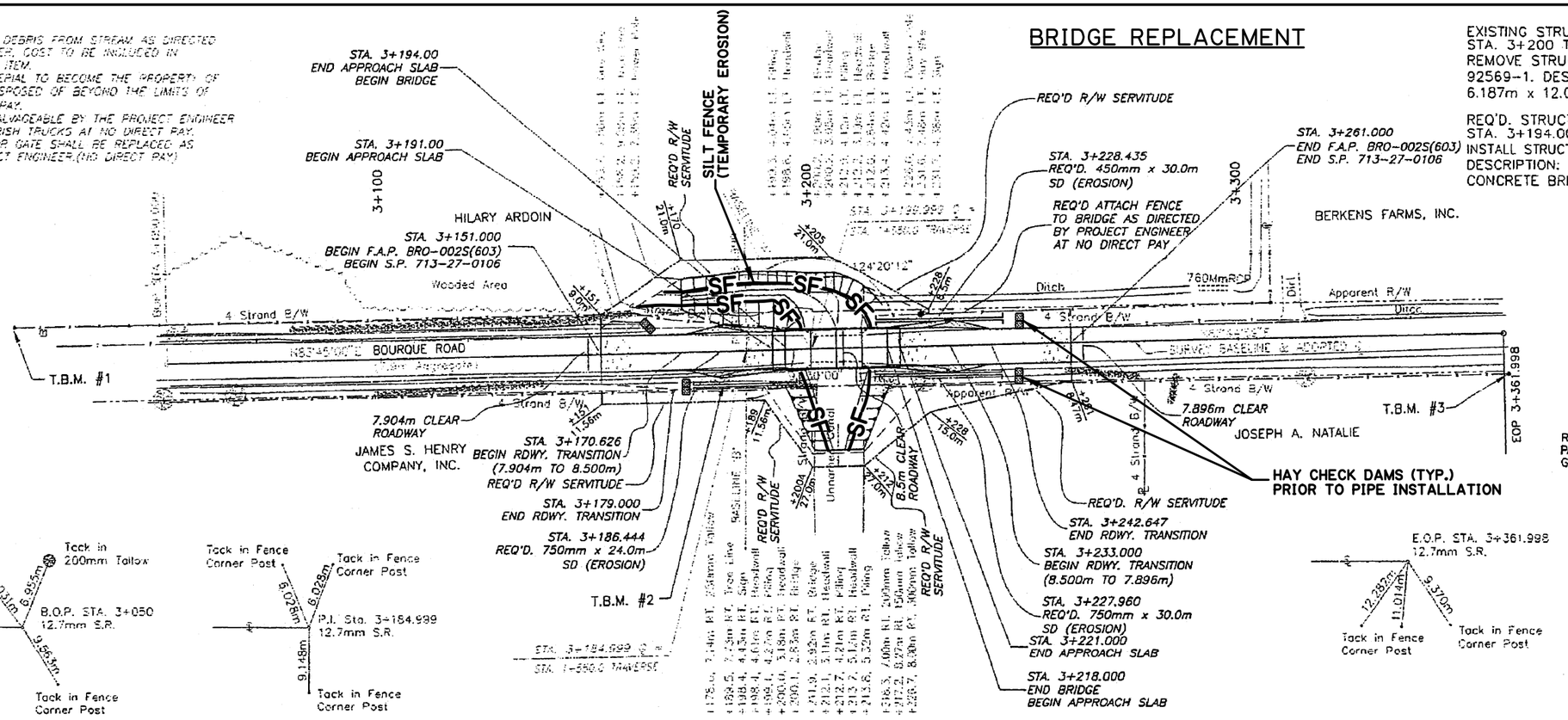
EXAMPLE I - Page 11 of 11

NOTES:
CONTRACTOR TO REMOVE DEBRIS FROM STREAM AS DIRECTED BY THE PROJECT ENGINEER. COST TO BE INCLUDED IN CLEARING AND GRUBBING ITEM.
ALL UNSALVAGEABLE MATERIAL TO BECOME THE PROPERTY OF THE CONTRACTOR AND DISPOSED OF BEYOND THE LIMITS OF THE R/W AT NO DIRECT PAY.
ALL MATERIAL DEEMED SALVAGEABLE BY THE PROJECT ENGINEER TO BE LOADED ONTO PARISH TRUCKS AT NO DIRECT PAY.
ANY DISTURBED FENCE OR GATE SHALL BE REPLACED AS DIRECTED BY THE PROJECT ENGINEER.(NO DIRECT PAY)

BRIDGE REPLACEMENT

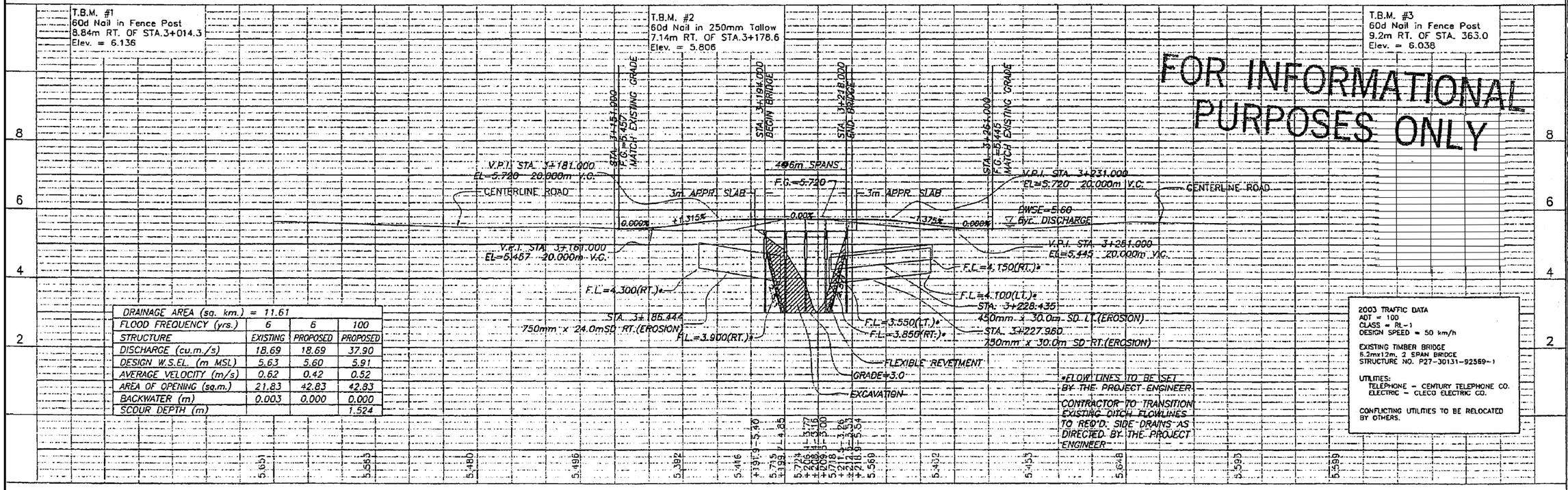
EXISTING STRUCTURE:
STA. 3+200 TO STA. 3+212
REMOVE STRUCTURE NO. P27-30131-92569-1. DESCRIPTION: TWO SPAN, 6.187m x 12.040m TIMBER BRIDGE.

REQ'D. STRUCTURE:
STA. 3+194.000 TO STA. 3+218.000,
INSTALL STRUCTURE - S.P. 713-27-0106.
DESCRIPTION: 4 SPAN, 8.500m x 24.000m CONCRETE BRIDGE AT 90° CROSSING.



REMOVAL OF LARGE TREES WILL BE PAID FOR UNDER THE CLEARING AND GRUBBING PAY ITEM.

RATIOS:
1:600 HOR
1:60 VER



DRAINAGE AREA (sq. km.) = 11.61			
FLOOD FREQUENCY (yrs.)	6	6	100
STRUCTURE	EXISTING	PROPOSED	PROPOSED
DISCHARGE (cu.m./s)	18.69	18.69	37.90
DESIGN W.S.EL. (m MSL)	5.63	5.60	5.91
AVERAGE VELOCITY (m/s)	0.62	0.42	0.52
AREA OF OPENING (sq.m.)	21.83	42.83	42.83
BACKWATER (m)	0.003	0.000	0.000
SCOUR DEPTH (m)			1.524

2003 TRAFFIC DATA
ADT = 100
CLASS = RL-1
DESIGN SPEED = 50 km/h

EXISTING TIMBER BRIDGE
6.2mx12m, 2 SPAN BRIDGE
STRUCTURE NO. P27-30131-92559-1

UTILITIES:
TELEPHONE - CENTURY TELEPHONE CO.
ELECTRIC - CLECO ELECTRIC CO.

CONFLICTING UTILITIES TO BE RELOCATED BY OTHERS.

*FLOW LINES TO BE SET BY THE PROJECT ENGINEER
CONTRACTOR TO TRANSITION EXISTING DITCH FLOWLINES TO REQ'D. SIDE DRAINS AS DIRECTED BY THE PROJECT ENGINEER

FOR INFORMATIONAL PURPOSES ONLY

SHEET NUMBER 4
PARISH JEFFERSON DAVIS
FEDERAL PROJECT BRO-002S(603)
STATE PROJECT 713-27-0106

BOURQUE ROAD
UNNAMED CANAL BRIDGE
PLAN AND PROFILE

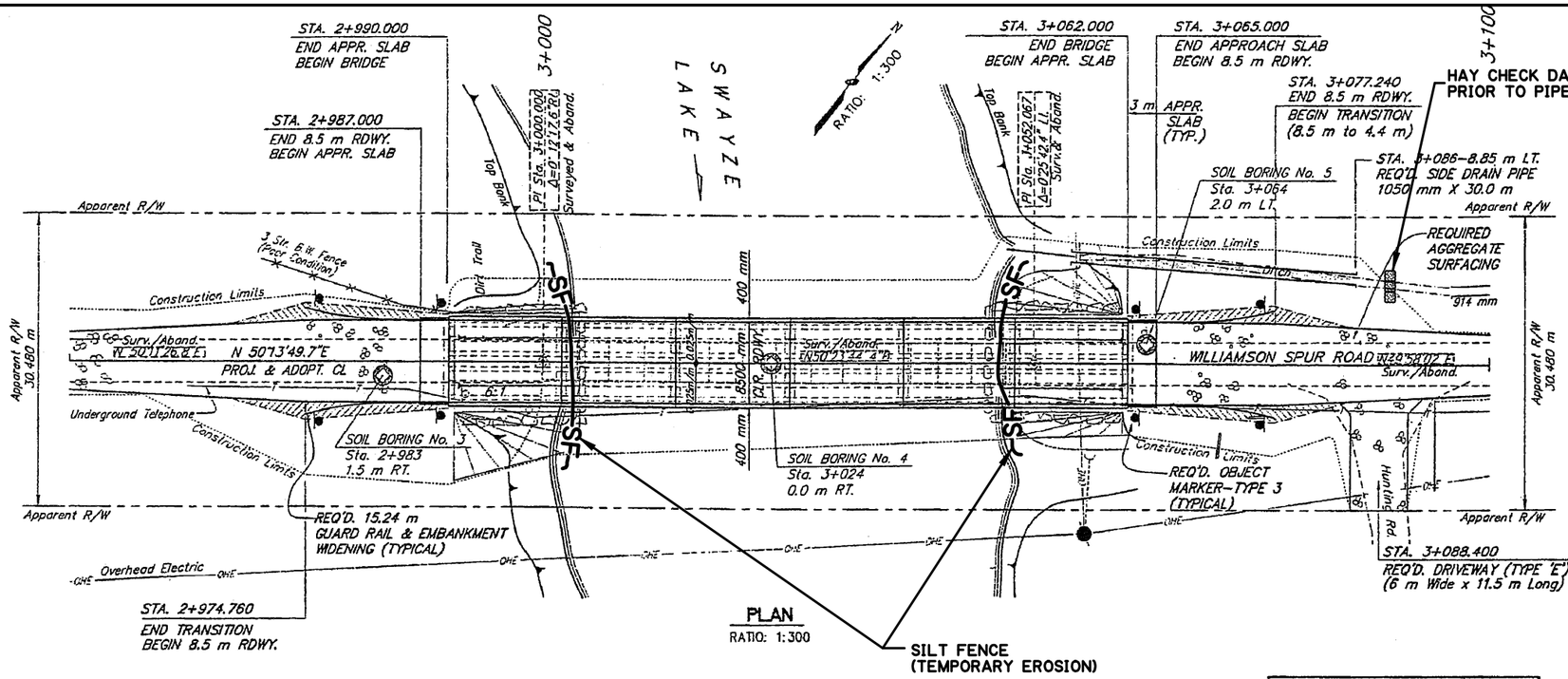
ROAD DESIGN

DESIGNED D. RANDOLPH
CHECKED T. VINCENT
DETAILED J. FABRE
CHECKED T. VINCENT
DATE SHEET 3/1/99

REVISION DESCRIPTION
BY
DATE
NO.

EXAMPLE 2

EXAMPLE 2 - Page 1 of 1

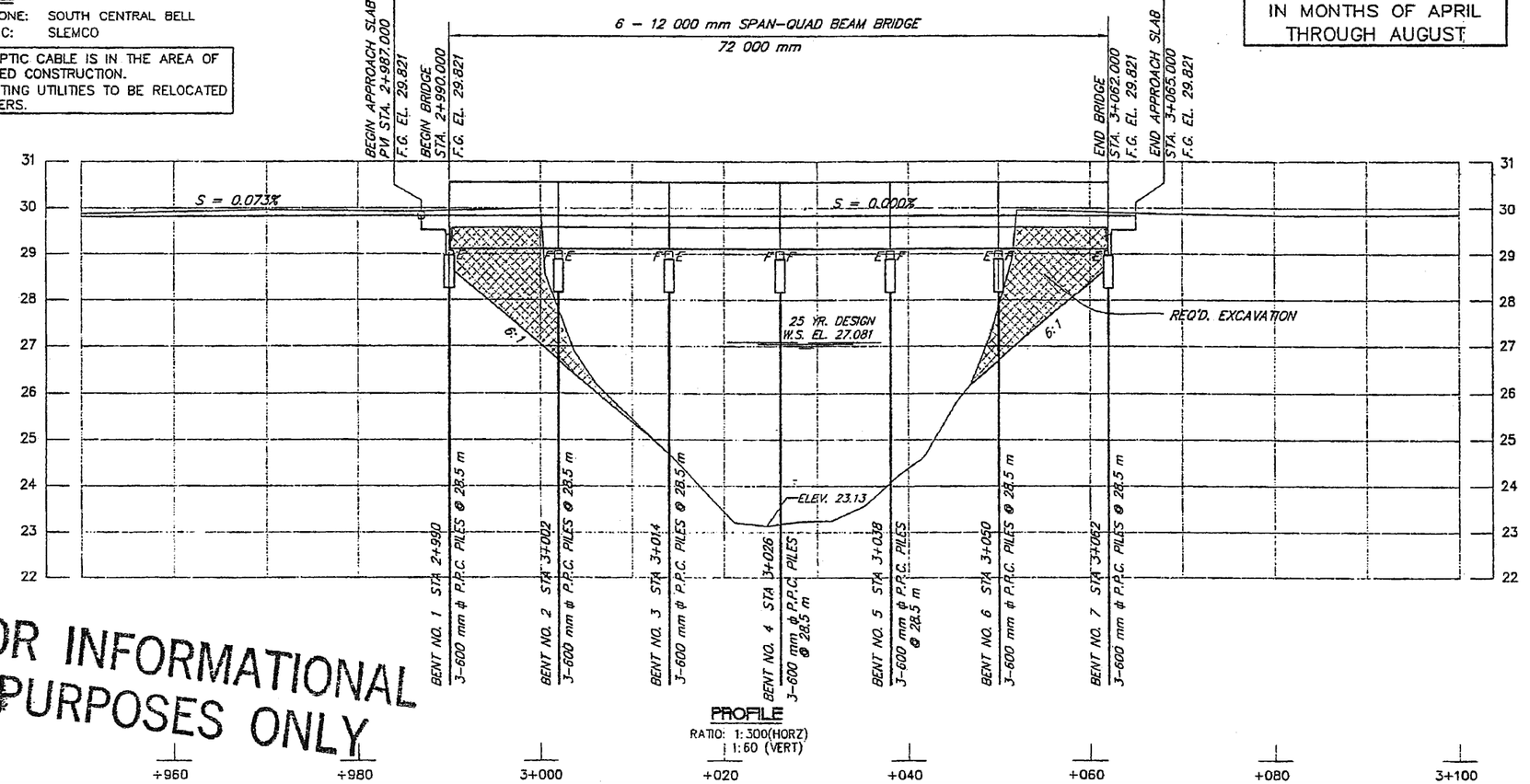


UTILITIES

TELEPHONE: SOUTH CENTRAL BELL
ELECTRIC: SLEMCO

FIBER OPTIC CABLE IS IN THE AREA OF PROPOSED CONSTRUCTION. CONFLICTING UTILITIES TO BE RELOCATED BY OTHERS.

CONSTRUCTION TO OCCUR IN MONTHS OF APRIL THROUGH AUGUST



FOR INFORMATIONAL PURPOSES ONLY

REQUIRED STRUCTURE:
QUAD BEAM SPAN BRIDGE
6-12 000 mm SPANS @ 90° 8.5 m RDWY.

STRUCTURE NO. P49-30383-91494-1

EXISTING 4.08 m WIDE X 52.07 m LONG TIMBER BRIDGE, 15 SPANS, BEGINNING AT STA. 3+000 TO BE REMOVED. [PAID FOR UNDER ITEM No. 202-02-A-02.

2002 TRAFFIC DATA

ADT: 150
CLASS: RL-1
DESIGN SPEED: 50 km/h

THE CONTRACTOR IS TO REMOVE ALL PARTS OF THE EXISTING BRIDGE IN ITS ENTIRETY AS STIPULATED IN THE CONSTRUCTION SPECIFICATIONS. ALL SALVAGEABLE MATERIALS, INCLUDING LOAD POSTING SIGNS, TO BE LOADED ONTO PARISH TRUCKS AT THE JOB SITE BY THE CONTRACTOR (NO DIRECT PAYMENT) AND HAULED BY THE ST. LANDRY PARISH POLICE JURY MAINTENANCE CREW. DISTRICT TO NOTIFY PARISH. ALL OTHER MATERIALS SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND DISPOSED OF BY THE CONTRACTOR OUTSIDE THE LIMITS OF THE RIGHT-OF-WAY.

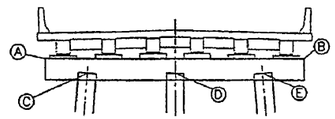
FOR EMBANKMENT WIDENING AND GUARD RAIL DETAILS, SEE STANDARD PLANS GR-203 AND GR-200.

YEAR PLATE REQUIRED AT EACH END OF BRIDGE. SEE STANDARD DETAIL YP-01(M).

ALL EXCAVATION AND EMBANKMENT TO BE IN PLACE BEFORE DRIVING PILES AFFECTED.

EXISTING TIMBER PILES TO BE CUT OFF 300 mm (MIN.) BELOW SOLID CHANNEL BOTTOM. CONTRACTOR TO REMOVE ANY EXISTING PILES THAT INTERFERE WITH THE PLACEMENT OF NEW PILES. (NO DIRECT PAY)

ALL AREAS OF DISTURBED EMBANKMENT SLOPES NOT HAVING REVETMENT ARE TO RECEIVE SEEDING AND FERTILIZING. (NO DIRECT PAY)



INTERMEDIATE BENT
(LOOKING TOWARDS INCREASING STATIONING)

BENT NO.	CAST IN PLACE					
	JOINT	A	B	C	D	E
1 & 7	EXP.	28.865	28.865	28.395	28.395	28.395
4	FIX.	28.905	28.905	28.435	28.435	28.435
2, 3, 5, 6	EXP.	28.865	28.865	28.395	28.395	28.395

BENT ELEVATIONS

HYDRAULIC DATA TABLE
Metric Units

Drainage Area = 28.39 Sq. Kilometer		EXISTING	PROPOSED	
Flood Frequency	Year	25	25	100
Discharge (m^3/s)		47	47	64
Structure		Existing Bridge	Proposed 72 m Conc. Bridge	
Design Water Surface Elev. (m MSL)		27.071*	27.081*	27.758*
Average Velocity (m/s)		0.399	0.388	0.399
Area Of Opening (m^2)		117.70	129.49	160.00
Backwater (m)		0.010	0.015	0.010
Bridge Scour Elev. (m)		21.63		

* Includes Differential Head

SHEET NUMBER 102

PARISH	FEDERAL PROJECT	STATE PROJECT
ST. LANDRY	BRO-0025(920)	713-49-0112

STATE OF LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

GENERAL PLAN
WILLIAMSON SPUR BRIDGE
OFF-SYSTEM BRIDGE REPLACEMENT PROGRAM

ROAD DESIGN

DESIGNED	CHECKED	DETAILED	CHECKED	DATE	SHEET
WCM	CHC	SAV	WCM	10/24/02	

NO.	DATE	REVISION DESCRIPTION	BY

EXAMPLE 3

EXAMPLE 3 - Page 1 of 1

F.A.P.	STATE PROJECT	PARISH	SHEET NO.
	026-03-0020	BEAUREGARD	9

Scale: 1"=50'

MURPHY L. HOLLINGSWORTH

RUBY HOLLINGSWORTH BURNETT

MYRTLE & LOLA HOLLINGSWORTH

Woods with Thick Underbrush

For Geometric Details of Ramps See Sheet 29

155+00 | 160+00 | 165+00 | 170+00

RAMP D

Sta. 157+74.73 Ramp D ℄ End P.C.C. Pvmt. Begin Asp. Conc.

3" Abond. P/

158+49.46 End Recovery

PT 159+21.02 RAMP D ℄ Begin Taper

Exist. R/W and Control of Access

Limits of Const.

161+99.20 End (RAMP D = 161+99.56-61.49'Lt (US 171 P&A ℄)

6" PVC

Fiber Optic Cable

STA. 164+50 Begin Transition One Way Crown

165+12.06 (US 171 P&A ℄) End Taper

165+50 Begin Shoulder Transition (4'-8" Rt.) (10'-9" Rt.)

STA. 166+50 End New Construction Lt. Roadway End Transition Normal Crown

Begin 2" Cold Plane and Overlay of Exist. Roadway and Shoulders

Remove Dead End Road Installation

Exist. Roadway & Shoulders To Remain

Surv. & Aband. B N 00°20'00.0" W

US 171 & US 190

Projected & Adopted ℄ N 00°20'00.0" W

50 PR CABLE

100 PR CABLE

300 PR CABLE

50' Shoulder Trans. (6 - 4)

*Sawcut Along Shoulder Edge

RAMP B

Sta. 163+68.80 RAMP B ℄ End Asphaltic Concrete Begin P.C.C. Pavement

PCC 162+21.60 RAMP B ℄

Limits of Const.

158+62.00 End Recovery

*Exist. Pavement to be Sawcut Full Depth and Removed Outside of Shoulder Line

Remove Exist. Conc. Islands

Existing Asphaltic Concrete Ramps To Be Obliterated and Graded To Drain As Directed By Project Engineer

Sta. 161+24.97 Rt. Rdwy. Begin New Construction

Limits of Const.

RAMP A

Limits of Const.

TBM #5
60d Nail In 12" Gum Tree
83' Lt. Sta. 165+46
Elev. 78.03

PCC 164+13.40 RAMP A ℄

Sta. 164+53.54 RAMP A ℄ Begin P.C.C. Pavement End Asphaltic Concrete

Exist. R/W and Control of Access

QUATRE PARISH COMPANY

PT 167+49.47 (RAMP A ℄)

168+24.47 End RAMP A ℄ = 168+24.47-58.50' Rt. (US 171 P&A ℄)

8d Nail In 14" Oak Tree — 54.14' — 28.67' — Chiseled "X" In SW Corner of West Headwall Of X-Drain

Surv. & Aband. POT STA. 165+40.74

60d Nail W/BL

31.65' — 54.50' — 8d Nail In 14" Oak Tree — Chiseled "X" In SE Corner of East Headwall Of X-Drain

FOR INFORMATIONAL PURPOSES ONLY

LT. ROADWAY PROFILE

90 | 85 | 80 | 75 | 70 | 65

F.G. ELEV. 85.15

155+31 Rt. Remove 18" x 25' RCP

155+53 Lt. Remove 36" x 24' RCP

649.28' VC

PVI STA = 153+64.64
PVI ELEV = 85.19

-0.62%

+89 End Std. Med. Ditch

155+89 Med. End Erosion Control Type D

155+89 Rt. Begin Erosion Control Type A

+89.28 Begin D.G. Med. Elev. 80.60

+00 Begin D.G. Rt. Elev. 79.20

157+53 3" ABAND. PIPELINE @ w/ 6" CASING INV. 67.76

D.G. Med. -0.68%

D.G. Rt. -0.60%

159+48 Rt. Remove Existing Catch Basin and 15" x 62' SDP

Finished Grade

600.00' VC

PVI STA = 162+00
PVI ELEV = 80.05

162+50 Exist. 18" x 88'

162+50 Med. End Erosion Control Type A

162+50 Rt. End Erosion Control Type A

D.G. Med. -0.24%

D.G. Lt. -0.10%

F.L. 76.53 Med.
F.L. 75.90 Rt.

+00 D.G. Lt. Elev. 75.03 Continuation From Ramp D See Sht. 21

+50 P.I. D.G. Med. Elev. 76.78

+80 End D.G. Rt. Elev. 75.90

UNCLASSIFIED EXCAVATION = 6047
EMBANKMENT = 2055

SHOULD INDICATE WHETHER FOR DITCH OR SLOPES

600.00' VC

PVI STA = 162+29.84
PVI ELEV = 79.86

0.00%

165+29.84 End Left Roadway Trans. R.P.I. Elev. 79.86

165+77 Lt. Begin Erosion Control Type A

165+77 Lt. Rcd'd Grate Drop (5) 4'x4' x 58' RCB Extension

165+98 Med. Rcd'd Storm Drain Pipe 18" x 16'

166+07 Med. Rcd'd CB-01 (Type "B" Grate)

166+19' Lt. Remove 18" x 36'

166+50 End New Construction Left Roadway — F.G. Elev. 81.18

+00 P.I. D.G. Med. Elev. 78.07

F.G. ELEV. 82.05

0.25%

D.G. Med. +0.25%

D.G. Med. +0.49%

D.G. Rt. +0.42%

D.G. Lt. +0.67%

F.L. 73.61 (Lt.)
F.L. 73.78 (Rt.)

+55 End D.G. Med. Elev. 77.50

+77 End D.G. Lt. Elev. 75.05

+77 Begin D.G. Lt. Elev. 75.05

See Sht. 18 For Ramp A

+77 Begin D.G. Rt. Elev. 75.82

F.L. 75.67

+07 Begin D.G. Med. Elev. 77.30

155+00 | 6 | 7 | 8 | 9 | 160+00 | 1 | 2 | 3 | 4 | 165+00 | 6 | 7 | 8 | 9 | 170+00

EXAMPLE 4

EXAMPLE 4 - Page 1 of 6

INDEX TO SHEETS

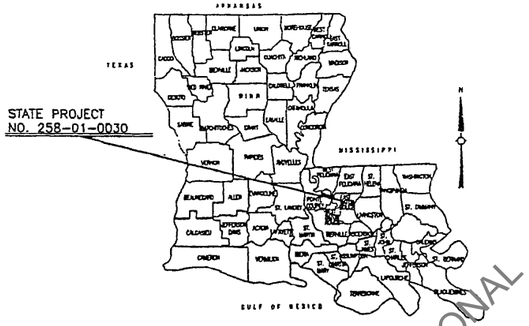
STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION & DEVELOPMENT
PLANS OF PROPOSED

STATE HIGHWAY

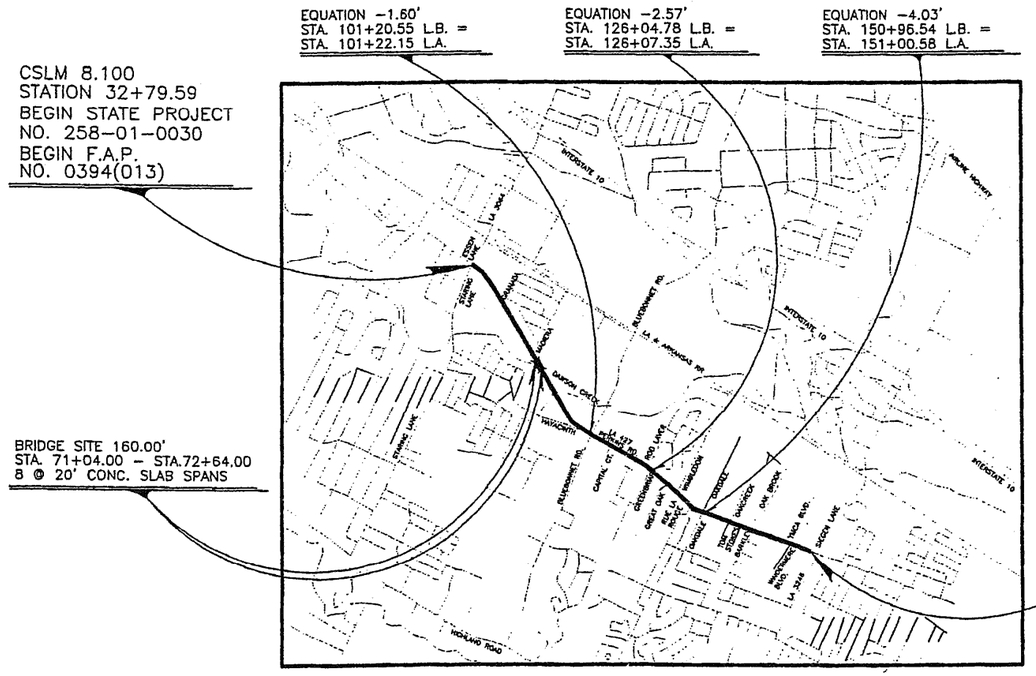
FEDERAL AID PROJECT NO. 0394(013)
STATE PROJECT NO. 258–01–0030

PERKINS ROAD IMPROVEMENTS (ESSEN LANE TO SIEGEN LANE)

EAST BATON ROUGE PARISH
ROUTE LA 427



VICINITY MAP



FOR INFORMATIONAL PURPOSES ONLY

STATE OF LOUISIANA
KENNETH J. CLARK
REG. NO. 9515
REGISTERED PROFESSIONAL ENGINEER IN CIVIL ENGINEERING

RECOMMENDED FOR APPROVAL

Washington
WASHINGTON GROUP INTERNATIONAL
DATE 09/22/2004

STATE OF LOUISIANA
WILLIAM C. MONROE
REG. No. 13691
REGISTERED PROFESSIONAL ENGINEER IN MECHANICAL ENGINEERING

VALUE ENGR – CONTRACT & SPECS CHANGES ONLY

W. C. MONROE, P.E., P.L.S.
DATE 12-22-2005

APPROVED

APPROVED

FEDERAL HIGHWAY ADMINISTRATION
DATE

TRAFFIC DATA:

2005 A.D.T. = 24570 vpd
2025 A.D.T. = 39850 vpd

D= 55 %
K= 10 %
T= 4.5 %

DESIGN SPEED= 45 M.P.H.

DESIGN CLASS – UA–2

DATE	REVISION	DATE	RECOMMENDED	DATE	APPROVED

SCHEDULE OF REVISIONS

TYPE OF CONSTRUCTION :

GRADING, DRAINAGE STRUCTURES, BASE COURSE PORTLAND CEMENT CONCRETE PAVEMENT, CONCRETE SLAB SPANS BRIDGE

DATUM USED : NAVD 88
MAG. VAR. :
BEARINGS ARE TRUE
TRANSIT BOOKS : N/A

LEVEL BOOKS : N/A

SCALES
PLAN : 1" = 20'

PROFILE : HOR. 1" = 20'
VERT. 1" = 4'

LAYOUT MAP

SCALE: 1 INCH = 2640 FEET

1 Mi. 0.5 Mi. 0 Mi. 0.5 Mi. 1 Mi.

NOTE:
THE 2000 EDITION OF THE LOUISIANA DOTD STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, AS AMENDED BY THE PROJECT SPECIFICATIONS, SHALL GOVERN ON THIS PROJECT.

LENGTH OF PROJECT

DESCRIPTION	ALGEBRAIC SUM OF ALL EQUATIONS	GROSS LENGTH	EXCEPTION	BRIDGE LENGTH		ROADWAY LENGTH	
STATION TO STATION	FEET	FEET	FEET	FEET	MILES	FEET	MILES
32+79.59–183+00.00	–8.20	15041.21		160.00	.030	14881.21	2.818
TOTAL LENGTH OF BRIDGES				160.00	.030		
TOTAL LENGTH OF ROADWAY						14881.21	2.818
TOTAL MILES				2.848			

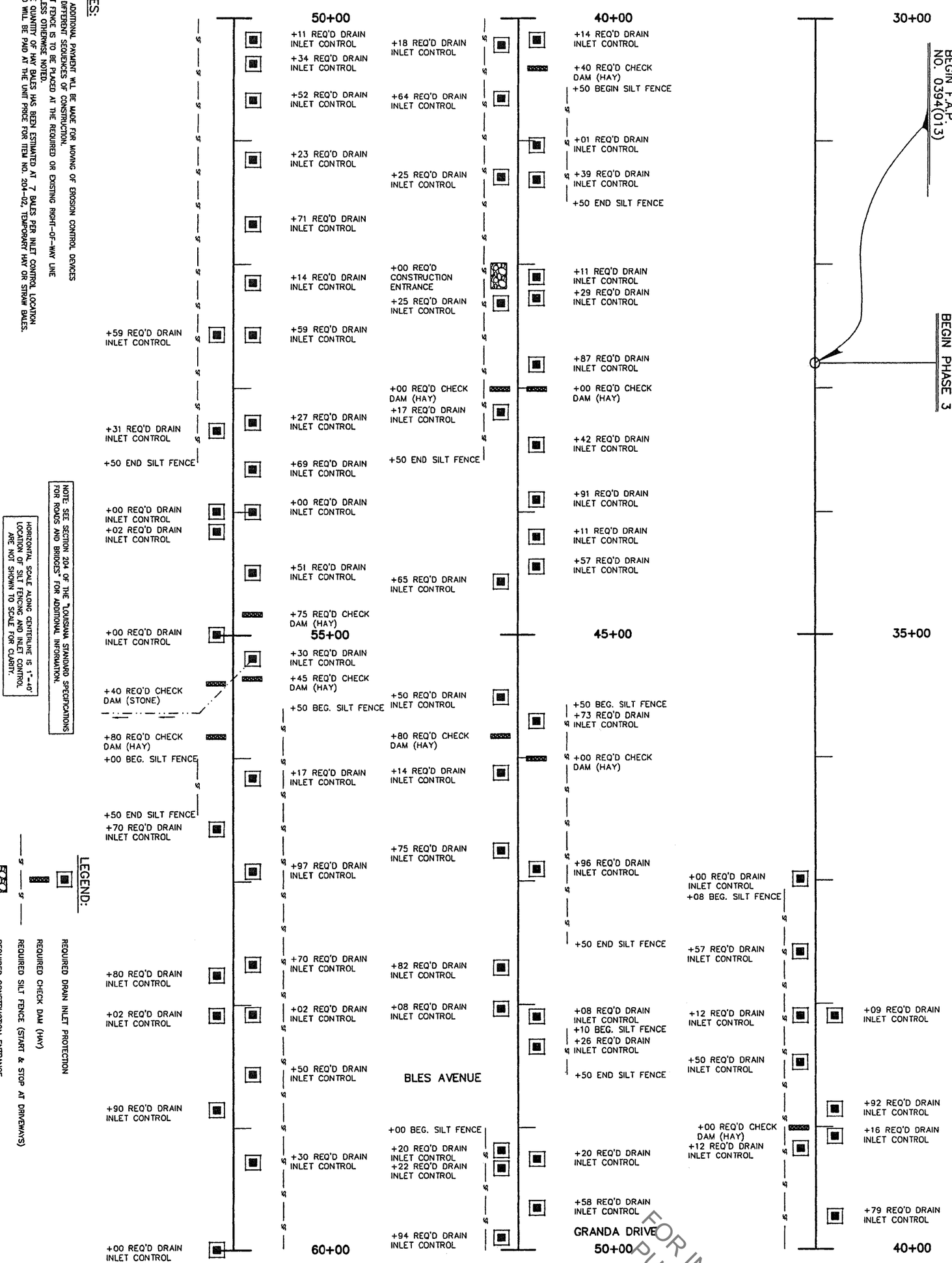
SHEET NUMBER	1
PARISH	EAST BATON ROUGE
FEDERAL PROJECT	0394(013)
STATE PROJECT	258–01–0030
DESIGNED / CHECKED	
DETAILED / CHECKED	
DATE SHEET	

REVISION DESCRIPTION | BY | NO. | DATE

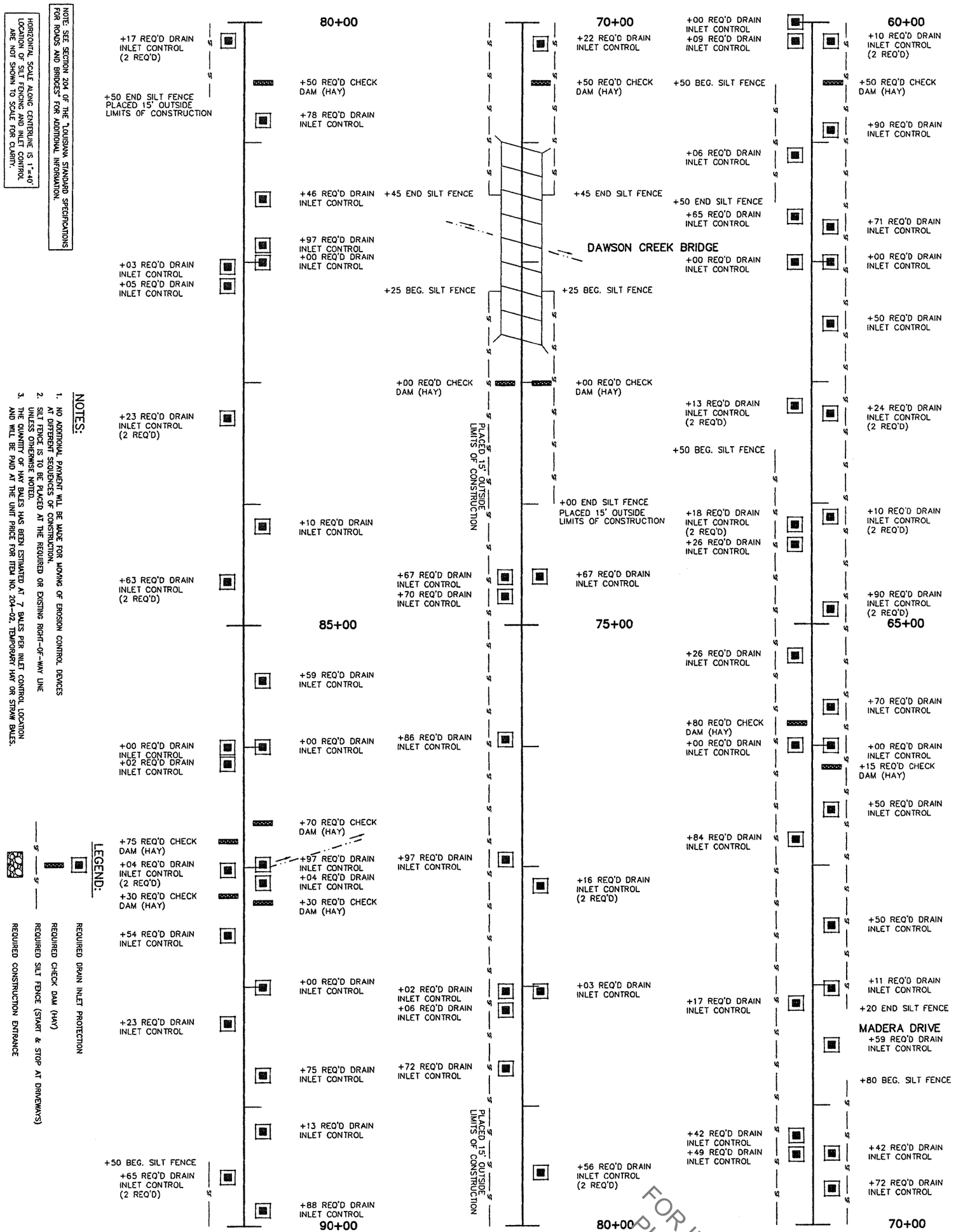
PERKINS ROAD (ESSEN LANE–SIEGEN LANE) LA 427

TITLE SHEET

ROAD DESIGN

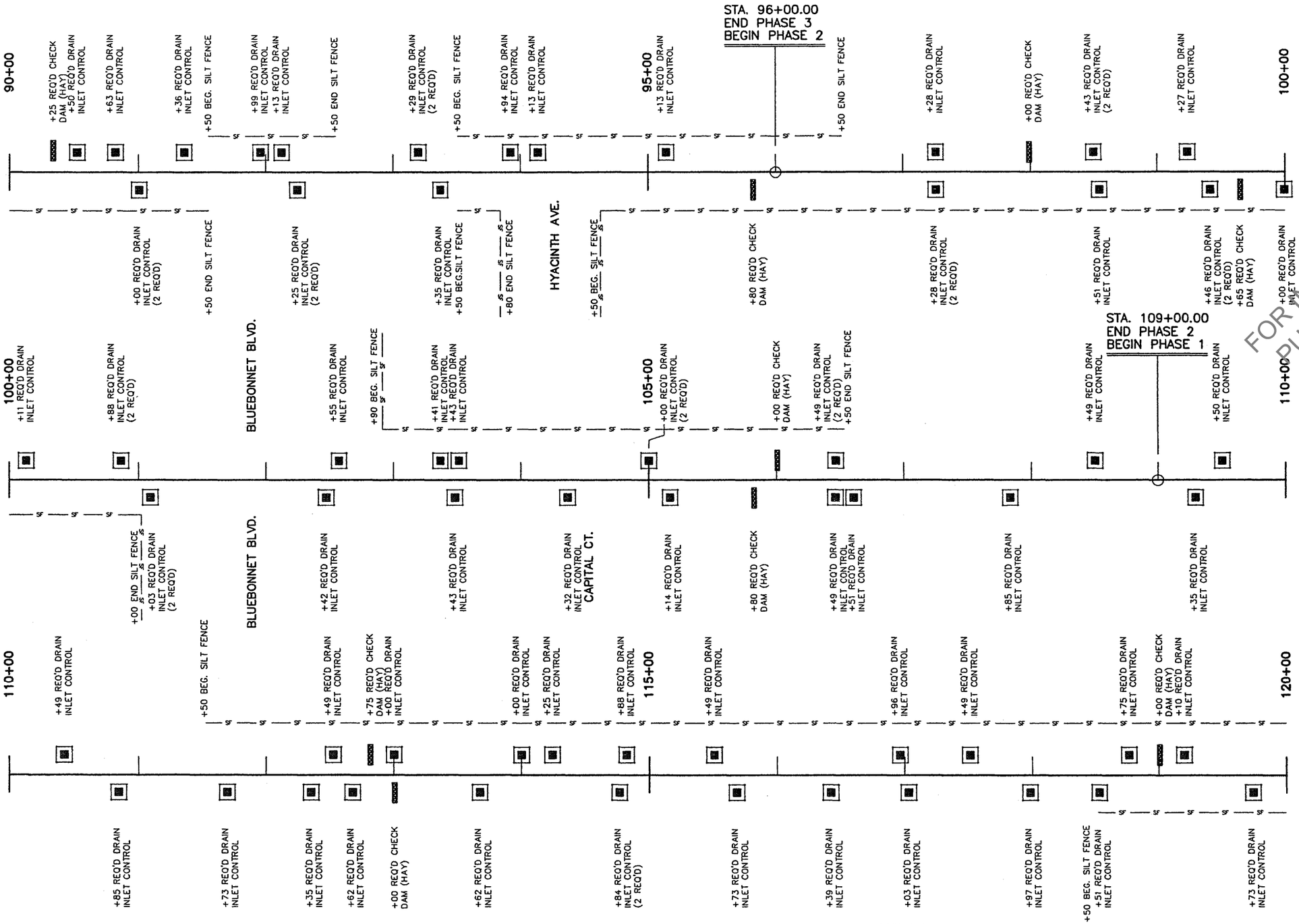


ROAD DESIGN	PERKINS ROAD (ESSEN LANE–SIEGEN LANE) LA 427	SUGGESTED TEMPORARY EROSION CONTROL DETAILS	NO.	DATE	REVISION DESCRIPTION	BY	DESIGNED CHC; CHECKED WCM; DETAILED SRM; CHECKED WCM; DATE 01/31/06; SHEET 1 OF 5	PARISH EAST BATON ROUGE; FEDERAL PROJECT 0394(013); STATE PROJECT 258-01-0030	SHEET NUMBER 245



ROAD DESIGN	PERKINS ROAD (ESSEN LANE–SIEGEN LANE) LA 427	SUGGESTED TEMPORARY EROSION CONTROL DETAILS	NO.	DATE	REVISION DESCRIPTION	BY	DESIGNED CHC; CHECKED WCM; DETAILED SRM; CHECKED WCM; DATE 01/31/06; SHEET 2 OF 5	PARISH EAST BATON ROUGE; FEDERAL PROJECT 0394(013); STATE PROJECT 258-01-0030	SHEET NUMBER 246

EXAMPLE 4 - Page 4 of 6



NOTE: SEE SECTION 204 OF THE "LOUISIANA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES" FOR ADDITIONAL INFORMATION.

HORIZONTAL SCALE ALONG CENTERLINE IS 1"=40'
LOCATION OF SILT FENCING AND INLET CONTROL ARE NOT SHOWN TO SCALE FOR CLARITY.

NOTES:

1. NO ADDITIONAL PAYMENT WILL BE MADE FOR MOVING OF EROSION CONTROL DEVICES AT DIFFERENT SEQUENCES OF CONSTRUCTION.
2. SILT FENCE IS TO BE PLACED AT THE REQUIRED OR EXISTING RIGHT-OF-WAY LINE UNLESS OTHERWISE NOTED.
3. THE QUANTITY OF HAY BALES HAS BEEN ESTIMATED AT 7 BALES PER INLET CONTROL LOCATION AND WILL BE PAID AT THE UNIT PRICE FOR ITEM NO. 204-02, TEMPORARY HAY OR STRAW BALES.

LEGEND:

- REQUIRED DRAIN INLET PROTECTION
- REQUIRED CHECK DAM (HAY)
- REQUIRED SILT FENCE (START & STOP AT DIRECTIONS)
- REQUIRED CONSTRUCTION ENTRANCE

STATE OF LOUISIANA
WILLIAM C. MONROE
REG. No. 13691
REGISTERED PROFESSIONAL ENGINEER
IN
STATE OF LOUISIANA

SHEET NUMBER 247

PARISH	FEDERAL PROJECT	STATE PROJECT
EAST BATON ROUGE	0394(013)	258-01-0030

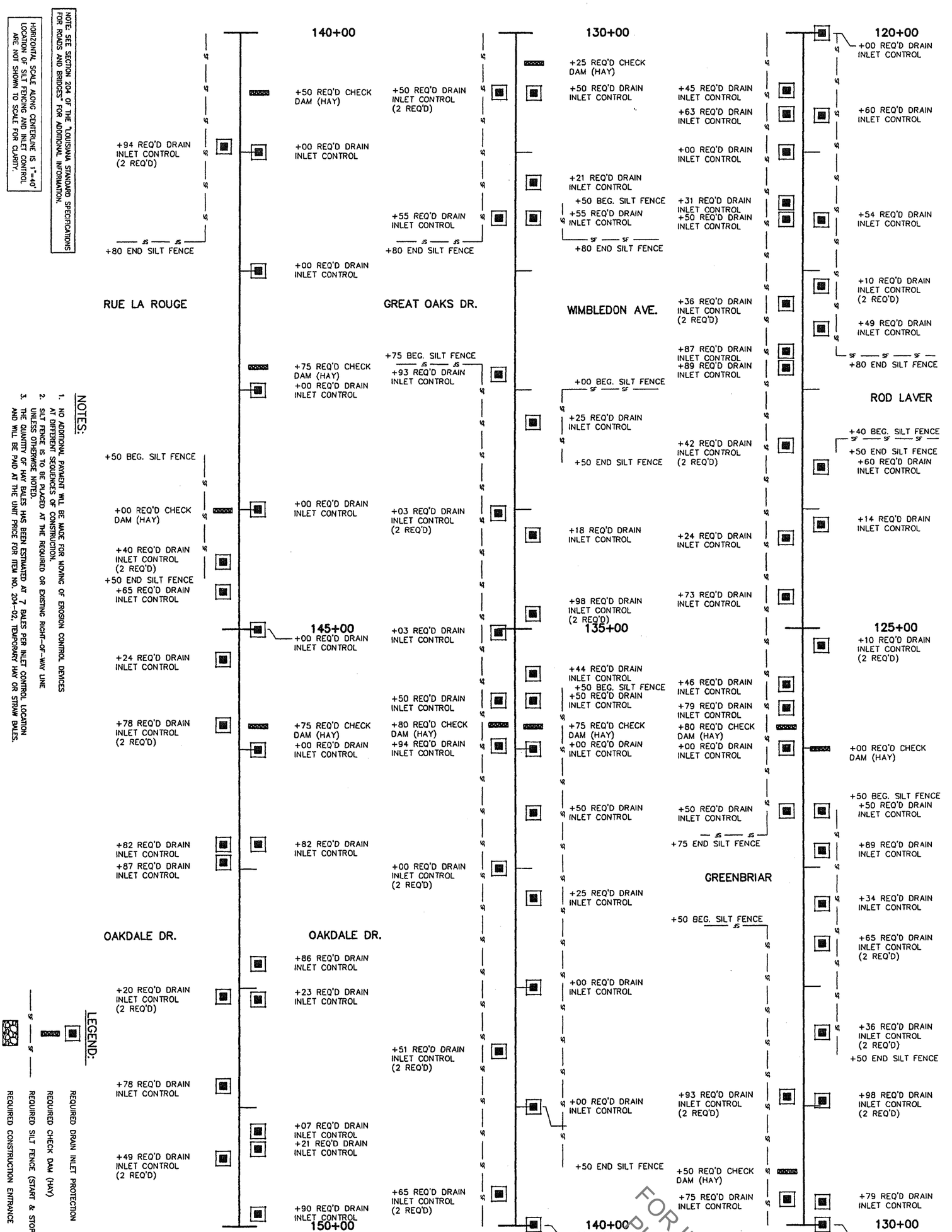
DESIGNED	CHC
CHECKED	WCM
DETAILED	SRM
CHECKED	WCM
DATE	01/31/06
SHEET	3 OF 5

NO.	DATE	REVISION DESCRIPTION	BY

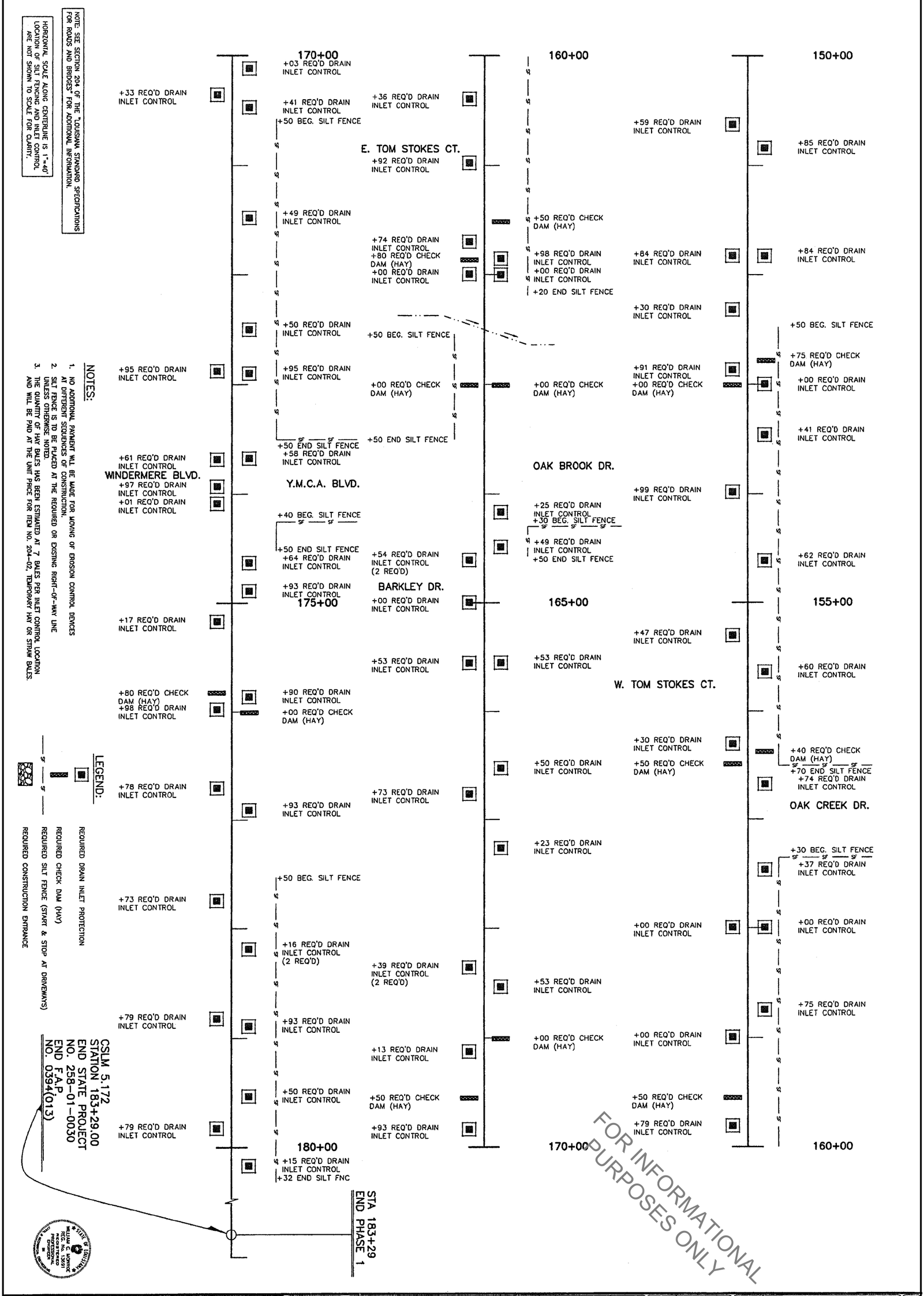
PERKINS ROAD
(ESSEN LANE-SIEGEN LANE)
LA 427

SUGGESTED TEMPORARY EROSION CONTROL DETAILS

ROAD DESIGN



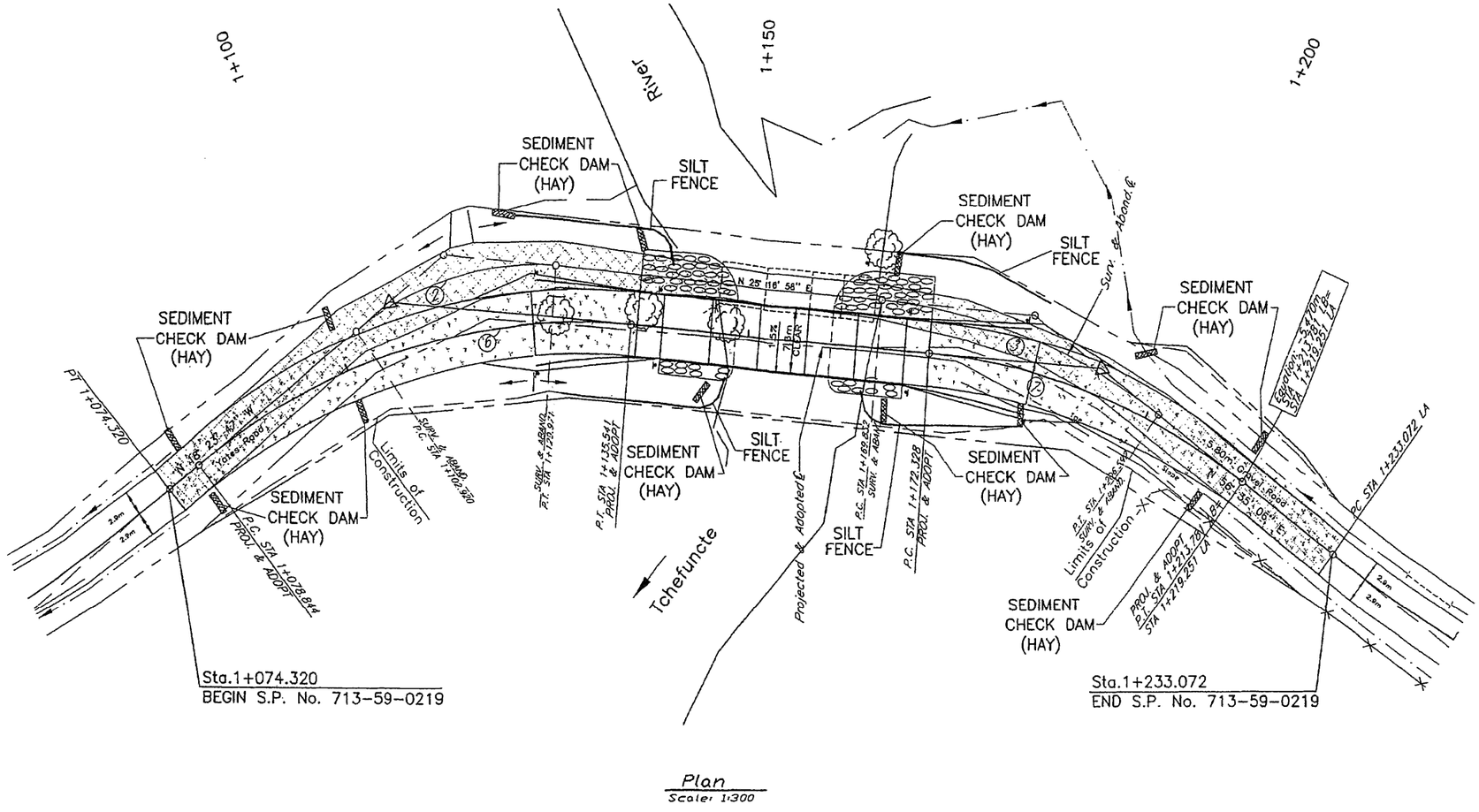
ROAD DESIGN	PERKINS ROAD (ESSEN LANE–SIEGEN LANE) LA 427		DESIGNED CHC	PARISH	EAST BATON ROUGE	SHEET NUMBER	248
	SUGGESTED TEMPORARY EROSION CONTROL DETAILS		CHECKED WCM				
			DETAILED SRM	FEDERAL PROJECT	0394(013)		
			CHECKED WCM				
			DATE 01/31/06	STATE PROJECT	258-01-0030		
			SHEET 4 OF 5				
		NO. DATE REVISION DESCRIPTION BY					



ROAD DESIGN	PERKINS ROAD (ESSEN LANE–SIEGEN LANE) LA 427		DESIGNED CHC	PARISH	EAST BATON ROUGE	SHEET NUMBER	249
	SUGGESTED TEMPORARY EROSION CONTROL DETAILS		CHECKED WCM				
			DETAILED SRM	FEDERAL PROJECT	0394(013)		
			CHECKED WCM				
			DATE 01/31/06	STATE PROJECT	258-01-0030		
			SHEET 5 OF 5				
NO.	DATE	REVISION DESCRIPTION	BY				

EXAMPLE 5

EXAMPLE 5 - Page 1 of 1



FOR INFORMATIONAL PURPOSES ONLY

NOTES:

FOR EROSION CONTROL DETAILS SEE STANDARD PLAN EC-01(M)

EROSION CONTROL ITEMS TO BE PLACED AS SHOWN OR AS DIRECTED BY PROJECT ENGINEER.

APPLICABLE EROSION CONTROL MEASURES ARE TO BE PLACED PRIOR TO BEGINNING CONSTRUCTION.

STATE OF LOUISIANA
ALVIN A. FAIRBURN, JR.
REG. NO. 13961
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEERING
3/18/03

SHEET NUMBER 15

PARISH	FEDERAL PROJECT	STATE PROJECT
WASHINGTON	BRO-002S(917)	713-59-0219

EROSION CONTROL PLAN

ROAD DESIGN

DESIGNED	THOMAS JOHNSON	
CHECKED	DON HOOPER	
DETAILED	THOMAS JOHNSON	
CHECKED	DON HOOPER	
DATE	MARCH 2003	
SHEET		

NO.	REVISION DESCRIPTION	BY	DATE