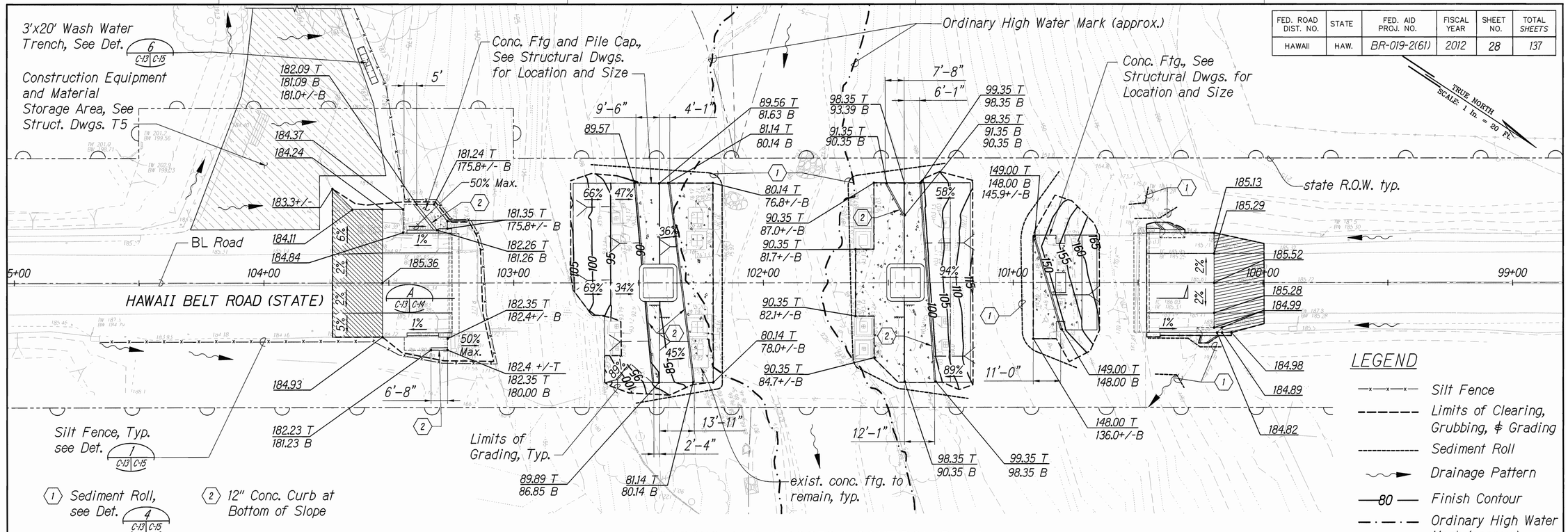
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(61)	2012	28	137



Site Specific Best Management Practices Notes:

1. Refer to Sht. C-2 and C-3 for general "Water Pollution and Erosion Control Notes".
2. All work shall be done in such a way as to isolate all work from the stream so that no material removed or replaced during the construction process will fall into or reach the stream.
3. The contractor shall install a rain gage prior to any field work including the installation of any site-specific best management practices. The rain gage shall have a tolerance of at least 0.05 inches of rainfall, and have an opening of at least one-inch in diameter. Install the rain gage on the project site in an area that will not deter rainfall from entering the gage opening. The rain gage installation shall be stable and plumbed. Do not begin field work until the rain gage is installed and site-specific best management practices are in-place.
4. Work within Ordinary High Water Mark (OHWM) as shown on the grading plans:
   a. The work shall be conducted in the dry season or when any affected stream has minimal or no flow, to the extent practicable. The work shall be discontinued during flooding, intense rainfall, storm surge, or high surf conditions where runoff and turbidity cannot be controlled.
   b. The contractor shall install a stream gage in line with the upstream edge of the proposed footings. The gage shall be closely monitored by designated personnel or by an automated alarm system. In the event that the stream elevation reaches 72 feet above mean sea level (MSL) or the stream depth rises more than 1 foot in 30 minutes all work shall be discontinued and personnel, loose construction materials, and equipment shall be relocated to higher ground (minimum of 10 feet above the OHWM) until the stream levels have subsided to the acceptable level. The above BMP represents a minimum measure and the contractor shall improve upon it as necessary to ensure personnel safety and minimize potential for pollutant and debris discharge to the stream.
   c. The contractor shall closely monitor the site rain gage. All work shall be discontinued and personnel/loose construction materials and equipment shall be relocated to higher ground (minimum of 10 feet above the OHWM) during intense rainfall of 0.5 inches or greater within a 24 hour period.
   d. The contractor shall check with the National Weather Service to keep abreast of approaching severe weather in order to take appropriate precautionary measures to secure the project site.
   e. At the end of each work day all loose construction material and equipment shall be relocated to higher ground (minimum of 10 feet above the OHWM).
   f. All footing form braces shall be constructed within the footing limits and shall not be located on the stream side of the forms. The contractor shall design the forms to withstand stream flow forces resulting from a 1-year recurrence interval storm which is estimated to have a stream flow elevation of 79.5 MSL at the upstream edge of the proposed footings and a stream flow velocity of 35 feet per second.
5. No project-related materials (fill, revetment rock, pipe etc.) shall be stockpiled within the stream banks.
6. No fueling of project-related vehicles and equipment shall take place within the stream banks.
7. The contractor shall not allow personnel or equipment to enter or cross the wetted portions of the stream bed.
8. Dewatering effluent shall not be discharged to the stream or any other tributary that will discharge to a stream, pond, or the ocean. Every effort should be made to allow ground water or storm water to naturally percolate into the ground. In the event that dewatering activities are absolutely necessary, dewatering effluent shall be hauled and disposed of at South Hilo Sanitary Landfill.
9. During work being performed above the stream banks and/or stream (e.g. chipping, removal of concrete or iron, painting, concrete pouring, etc.) netting, filter cloth, or similar materials shall be suspended below the work area in such a fashion as to capture any falling debris and prevent contamination of the stream and/or stream banks.
10. Refer to Special Provisions for information on lead removal and testing.

GRADING AND EROSION CONTROL PLAN
SCALE: 1" = 20'

GRAPHIC SCALE: 20 10 0 20 40 — 1" = 20'

ORIGINAL PLAN | NOTEBOOK | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE

Plotted: Tue, 24 Jul 2012 - 7:40am By: DYANOS
File Name: H:\Y2008\08016_Umauma Bridge\07 Drawings\C-13 to C-15 HAWAMA - Grading and Erosion Control Plan and Section.dwg

WILLIAM H. Q. BOW LICENSED PROFESSIONAL ENGINEER NO. 4904-C HAWAII USA

LICENSE EXPIRES: 4/30/14
THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION

STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

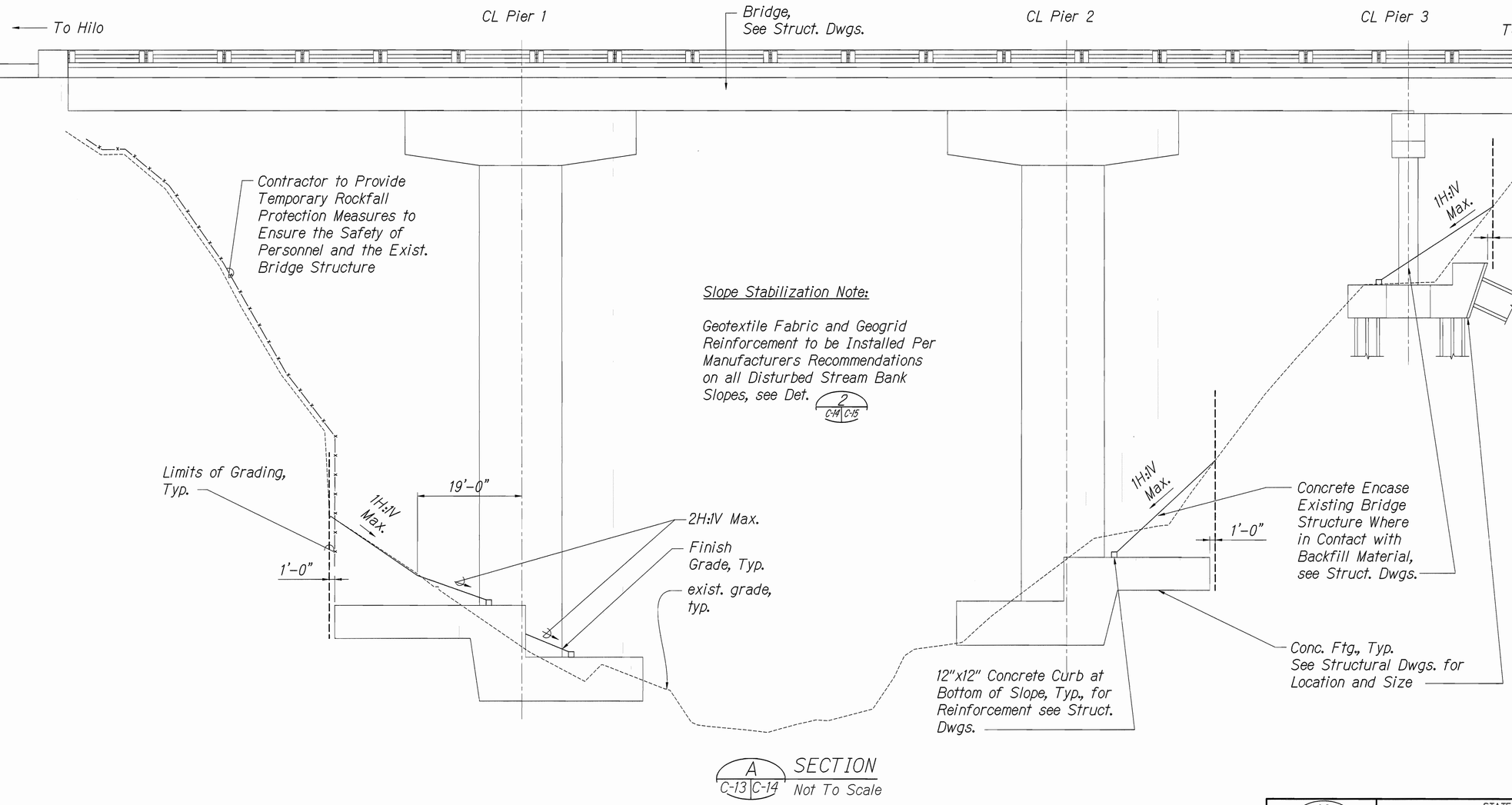
GRADING AND EROSION CONTROL PLAN

HAWAII BELT ROAD
Rehabilitation of Umauma Stream Bridge
Federal Aid Project No. BR-019-2(61)

Scale: 1" = 20' Date: July 25, 2012

SHEET No. C-13 OF 19 SHEETS

FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(61)	2012	29	137



A C-13 C-14 SECTION
Not To Scale

ORIGINAL PLAN | NOTEBOOK No. ____ | SURVEY PLOTTED BY ____ DATE ____ | DRAWN BY ____ | TRACED BY ____ | DESIGNED BY ____ | QUANTITIES BY ____ | CHECKED BY ____

Plotted: Tue, 24 Jul 2012 - 7:40am By: DYANOS
File Name: H:\PROJECTS\019\Umauma Bridge\07 Drawings\C-13 to C-15 UMAUMA - Grading and Erosion Control Plan and Section.dwg

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STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
HIGHWAYS DIVISION

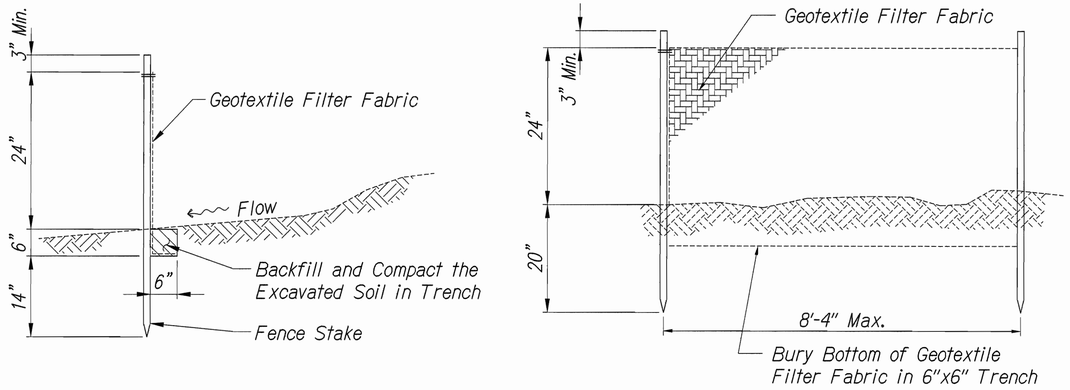
SECTION

HAWAII BELT ROAD
Rehabilitation of Umauma Stream Bridge
Federal Aid Project No. BR-019-2(61)

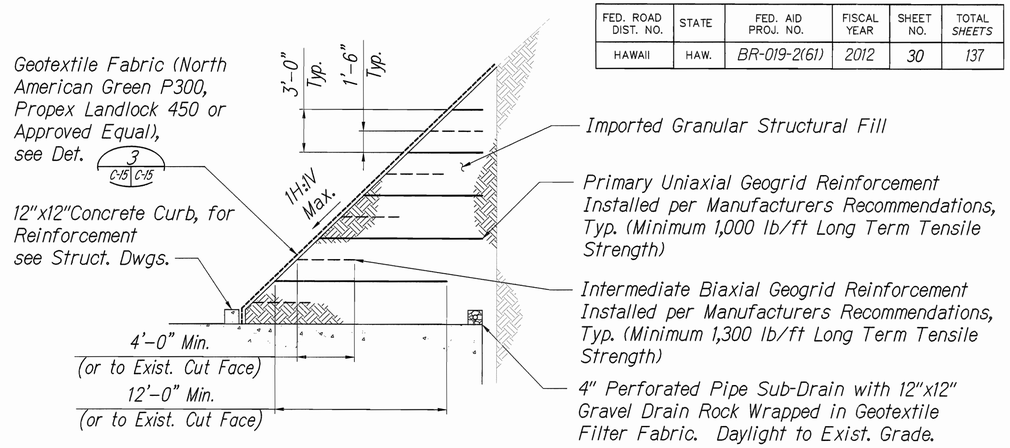
Scale: None Date: July 25, 2012

SHEET No. C-14 OF 19 SHEETS

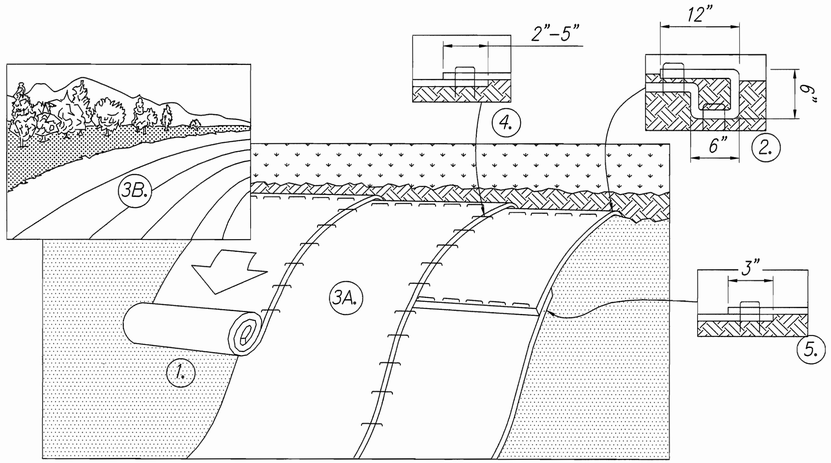
FED. ROAD DIST. NO.	STATE	FED. AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	BR-019-2(61)	2012	30	137



1 C-13 C-15 TYPICAL SILT FENCE DETAIL
Not To Scale

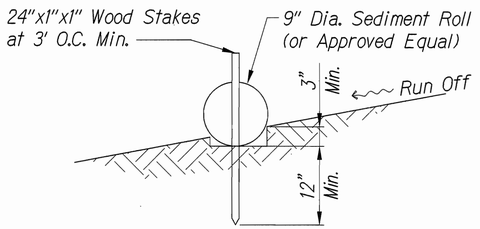


2 C-14 C-15 TYPICAL SLOPE STABILIZATION DETAIL
NOT TO SCALE



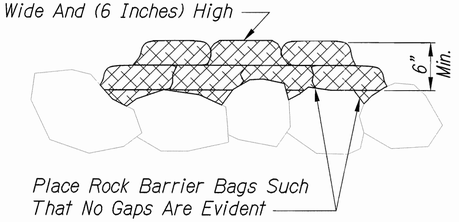
1. Prepare Soil Before Installing Rolled Erosion Control Products (Recp's), Including Any Necessary Application Of Lime, Fertilizer, And Seed.
2. Begin At The Top Of The Slope By Anchoring The Recp's In A 6" Deep X 6" Wide Trench With Approximately 12" (30cm) Of Recp's Extended Beyond The Up-slope Portion Of The Trench. Anchor The Recp's With A Row Of Staples/stakes Approximately 12" Apart In The Bottom Of The Trench. Backfill And Compact The Trench After Stapling. Apply Seed To Compacted Soil And Fold Remaining 12" Portion Of Recp's Back Over Seed And Compacted Soil. Secure Recp's Over Compacted Soil With A Row Of Staples/stakes Spaced Approximately 12" Apart Across The Width Of The Recp's.
3. Roll The Recp's (a.) Down Or (b.) Horizontally Across The Slope. Recp's Will Unroll With Appropriate Side Against The Soil Surface. All Recp's Must Be Securely Fastened To Soil Surface By Placing Staples/stakes In Appropriate Locations As Shown In The Staple Pattern Guide. When Using The Dot System, Staples/stakes Should Be Placed Through Each Of The Colored Dots Corresponding To The Appropriate Staple Pattern.
4. The Edges Of Parallel Recp's Must Be Stapled With Approximately 2" - 5" Overlap Depending On Recp's Type.
5. Consecutive Recp's Spliced Down The Slope Must Be Placed End Over End (shingle Style) With An Approximate 3" Overlap. Staple Through Overlapped Area, Approximately 12" Apart Across Entire Recp's Width. Note: *in Loose Soil Conditions, The Use Of Staple Or Stake Lengths Greater Than 6" May Be Necessary To Properly Secure The Recp's.

3 C-14, C-15 C-15 GEOTEXTILE FABRIC INSTALLATION DETAIL
NOT TO SCALE

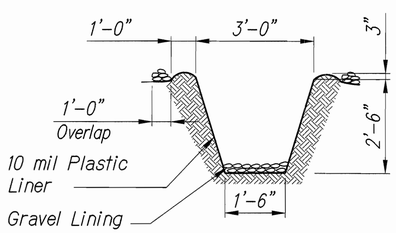


NOTE:
If the site topography does not allow for bottom of sediment roll to be continuously installed 3" below adjacent grade, contractor shall use rock barrier bags per detail 5 C-15 C-15

4 C-13 C-15 SEDIMENT ROLL DETAIL
Not To Scale



5 C-15 C-15 ROCK BARRIER BAG DETAIL
Not To Scale



6 C-13 C-15 WASH WATER TRENCH DETAIL
Not To Scale

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EROSION CONTROL DETAILS

HAWAII BELT ROAD
Rehabilitation of Umauma Stream Bridge
Federal Aid Project No. BR-019-2(61)

Scale: None Date: July 25, 2012

SHEET No. C-15 OF 19 SHEETS

ORIGINAL PLAN | SURVEY PLOTTED BY | DRAWN BY | TRACED BY | DESIGNED BY | QUANTITIES BY | CHECKED BY | DATE
NOTEBOOK | No.

Plotted: Tue, 24 Jul 2012 - 7:40am By: DYANOS
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