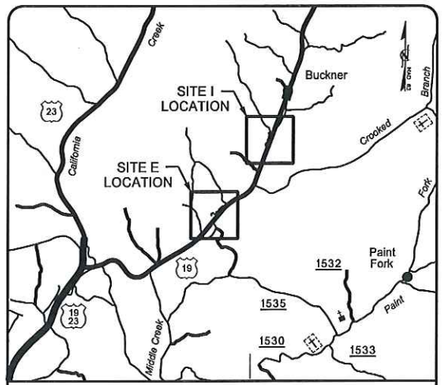
TIP PROJECT: R-2518WM

See Sheet 1-A For Index of Sheets



VICINITY MAP

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

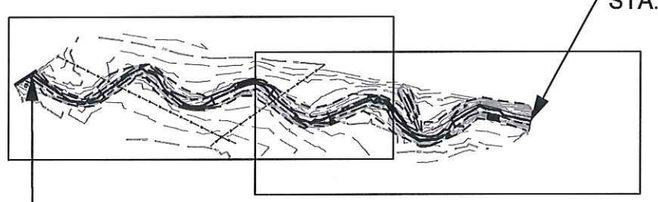
MADISON COUNTY

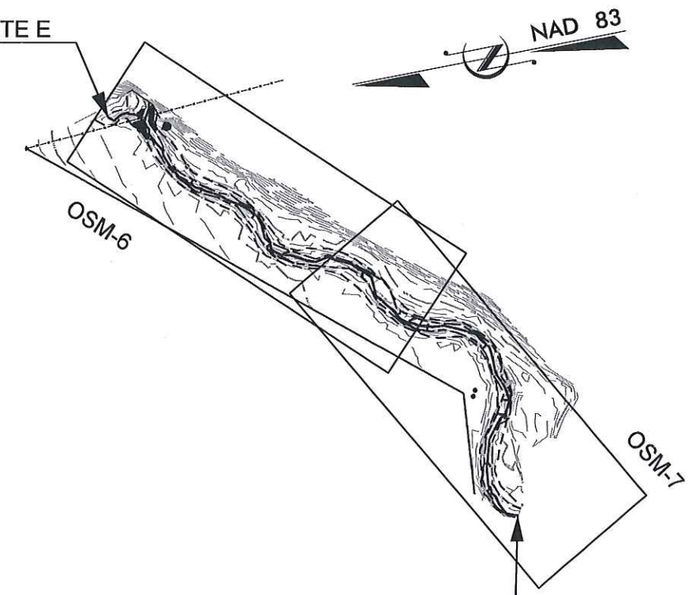
LOCATION: US HIGHWAY 19

TYPE OF WORK: REPAIR PLANS FOR SITE E AND I

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2518WM	OSM-1	15

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION
34445.3.1		P.E.
34445.3.1		CONST.





INCOMPLETE PLANS
DO NOT USE FOR R/W ACQUISITION
PRELIMINARY PLANS
DO NOT USE FOR CONSTRUCTION

NCDOT Contact: JAMIE LANCASTER, PE

GRAPHIC SCALES

20 10 0 20 40
PLANS

20 10 0 20 40
PROFILE (HORIZONTAL)

5 2.5 0 5 10
PROFILE (VERTICAL)

PROJECT LENGTH

SITE I
EXISTING STREAM LENGTH = 917 FT
PROPOSED DESIGN STREAM LENGTH = 917 FT

SITE E
EXISTING STREAM LENGTH = 1,034 FT
PROPOSED DESIGN STREAM LENGTH = 1,034 FT

Prepared In the Office of:
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License #: F-1084

2012 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:

LETTING DATE:

WILLIAM SCOTT HUNT, III
PROJECT ENGINEER

MICKY CLEMMONS
PROJECT SCIENTIST

PROJECT ENGINEER
NORTH CAROLINA PROFESSIONAL SEAL 22967 ENGINEER WILLIAM SCOTT HUNT, III
11.18.2013
SIGNATURE: *P.E.*

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY DESIGN ENGINEER *P.E.*

11/18/2013
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mcarey

PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	OSM-1A

PROJECT ENGINEER

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NORTH CAROLINA PROFESSIONAL SEAL 22967 ENGINEER WILLIAM SCOTT HUNT, III

11-18-2013

REVISIONS

GENERAL NOTES

1. THE CONTRACTOR IS RESPONSIBLE FOR JOB SITE SAFETY.
2. SUBSURFACE PLANS ARE NOT AVAILABLE; THEREFORE, THE CONTRACTOR WILL BE REQUIRED TO LOCATE UTILITIES AND PROTECT FROM DAMAGE.
3. GRADING SHOULD INCLUDE SMOOTH TRANSITIONS.
4. CONTRACTOR WILL BE REQUIRED TO PUMP BASE STREAM FLOW AROUND AREA WHERE CONSTRUCTION WILL OCCUR IN THE ACTIVE STREAM CHANNEL.
5. WORK ZONE TRAFFIC CONTROL AND SIGNS WILL BE INCIDENTAL TO OTHER CONTRACT ITEMS. SIGNING AND TRAFFIC CONTROL WILL BE AS DIRECTED BY THE ENGINEER.
6. BOULDERS FROM EXISTING STRUCTURES THAT ARE BEING REMOVED AS PART OF THE PLANS MAY BE USED FOR CONSTRUCTING NEW STRUCTRURES. PAYMENT FOR USE OF THE EXISTING BOULDERS WILL BE CONSIDERED INCIDENTAL TO LUMP SUM GRADING.

INDEX OF SHEETS

OSM-1	TITLE SHEET
OSM-1A	INDEX OF SHEETS, STREAM CONVENTIONAL SYMBOLS, AND GENERAL NOTES
OSM-1B	CONVENTIONAL PLAN SHEET SYMBOLS
OSM-2 TO OSM-2C	DETAILS
OSM-3	SUMMARY OF QUANTITIES, CONSTRUCTION SEQUENCE, EARTHWORK SUMMARY, AND STRUCTURE TABLE
OSM-4 TO OSM-7	PLAN VIEW AND PROFILE OF EXISTING CONDITIONS AND PROPOSED STREAM DESIGN
OSM-8 TO OSM-10	SITE OVERVIEW, GRADING LIMITS, CONSTRUCTION ACCESS AND STOCKPILE LOCATIONS

STREAM CONVENTIONAL SYMBOLS

SUPERCEDES SHEET 1B

- ROCK J-HOOK
- ROCK VANE
- OUTLET PROTECTION
- ROCK CROSS VANE
- DOUBLE DROP ROCK CROSS VANE
- SINGLE WING DEFLECTOR
- DOUBLE WING DEFLECTOR
- TEMPORARY SILT CHECK
- ROOT WAD
- LOG J-HOOK
- LOG VANE
- LOG WEIR
- LOG CROSS VANE
- CONSTRUCTED RIFFLE
- BOULDER CLUSTER
- ROCK STEP POOL
- LOG STEP POOL
- SAFETY FENCE
- TF — TAPE FENCE
- FP — 100 YEAR FLOOD PLAIN
- CE — CONSERVATION EASEMENT
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- LIMITS OF DISTURBANCE
- FOOT BRIDGE
- TEMPORARY STREAM CROSSING
- PERMANENT STREAM CROSSING
- TRANSPLANTED VEGETATION
- TREE REMOVAL
- TREE PROTECTION
- DITCH PLUG
- CHANNEL FILL
- BRUSH MATTRESS
- GEOLIFT

**NOTE: ALL ITEMS ABOVE MAY NOT BE USED ON THIS PROJECT

3/15/06

PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	OSM-1B

Note: Not to Scale

**S.U.E. = Subsurface Utility Engineering*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

NORTH CAROLINA PROFESSIONAL SEAL 22967 ENGINEER WILLIAM SCOTT HUNT, III

11.18.03

BOUNDARIES AND PROPERTY:

- State Line
- County Line
- Township Line
- City Line
- Reservation Line
- Property Line
- Existing Iron Pin — EIP
- Property Corner
- Property Monument — ECM
- Parcel/Sequence Number — 23
- Existing Fence Line
- Proposed Woven Wire Fence
- Proposed Chain Link Fence
- Proposed Barbed Wire Fence
- Existing Wetland Boundary — WLB
- Proposed Wetland Boundary — WLB
- Existing Endangered Animal Boundary — EAB
- Existing Endangered Plant Boundary — EPB

BUILDINGS AND OTHER CULTURE:

- Gas Pump Vent or U/G Tank Cap
- Sign
- Well
- Small Mine
- Foundation
- Area Outline
- Cemetery
- Building
- School
- Church
- Dam

HYDROLOGY:

- Stream or Body of Water
- Hydro, Pool or Reservoir
- Jurisdictional Stream — JS
- Buffer Zone 1 — BZ 1
- Buffer Zone 2 — BZ 2
- Flow Arrow
- Disappearing Stream
- Spring
- Wetland
- Proposed Lateral, Tail, Head Ditch — FLOW
- False Sump

RAILROADS:

- Standard Gauge — CSX TRANSPORTATION
- RR Signal Milepost — MILEPOST 35
- Switch — SWITCH
- RR Abandoned
- RR Dismantled

RIGHT OF WAY:

- Baseline Control Point
- Existing Right of Way Marker
- Existing Right of Way Line
- Proposed Right of Way Line — RW
- Proposed Right of Way Line with Iron Pin and Cap Marker — RW
- Proposed Right of Way Line with Concrete or Granite Marker — RW
- Existing Control of Access — CA
- Proposed Control of Access — CA
- Existing Easement Line — E
- Proposed Temporary Construction Easement — E
- Proposed Temporary Drainage Easement — TDE
- Proposed Permanent Drainage Easement — PDE
- Proposed Permanent Utility Easement — PUE
- Proposed Temporary Utility Easement — TUE
- Proposed Permanent Easement with Iron Pin and Cap Marker

ROADS AND RELATED FEATURES:

- Existing Edge of Pavement
- Existing Curb
- Proposed Slope Stakes Cut — C
- Proposed Slope Stakes Fill — F
- Proposed Wheel Chair Ramp — WCR
- Existing Metal Guardrail
- Proposed Guardrail
- Existing Cable Guiderail
- Proposed Cable Guiderail
- Equality Symbol
- Pavement Removal

VEGETATION:

- Single Tree
- Single Shrub
- Hedge
- Woods Line
- Orchard
- Vineyard — Vineyard

EXISTING STRUCTURES:

MAJOR:

- Bridge, Tunnel or Box Culvert — CONC
- Bridge Wing Wall, Head Wall and End Wall — CONC WW

MINOR:

- Head and End Wall — CONC HW
- Pipe Culvert
- Footbridge
- Drainage Box: Catch Basin, DI or JB — CB
- Paved Ditch Gutter
- Storm Sewer Manhole — S
- Storm Sewer — S

UTILITIES:

POWER:

- Existing Power Pole
- Proposed Power Pole
- Existing Joint Use Pole
- Proposed Joint Use Pole
- Power Manhole — P
- Power Line Tower
- Power Transformer
- U/G Power Cable Hand Hole — HH
- H-Frame Pole
- Recorded U/G Power Line — P
- Designated U/G Power Line (S.U.E.*) — P

TELEPHONE:

- Existing Telephone Pole
- Proposed Telephone Pole
- Telephone Manhole — T
- Telephone Booth
- Telephone Pedestal — T
- Telephone Cell Tower
- U/G Telephone Cable Hand Hole — HH
- Recorded U/G Telephone Cable — T
- Designated U/G Telephone Cable (S.U.E.*) — T
- Recorded U/G Telephone Conduit — TC
- Designated U/G Telephone Conduit (S.U.E.*) — TC
- Recorded U/G Fiber Optics Cable — T FO
- Designated U/G Fiber Optics Cable (S.U.E.*) — T FO

WATER:

- Water Manhole — W
- Water Meter
- Water Valve
- Water Hydrant
- Recorded U/G Water Line — W
- Designated U/G Water Line (S.U.E.*) — W
- Above Ground Water Line — A/G Water

TV:

- TV Satellite Dish
- TV Pedestal — C
- TV Tower
- U/G TV Cable Hand Hole — HH
- Recorded U/G TV Cable — TV
- Designated U/G TV Cable (S.U.E.*) — TV
- Recorded U/G Fiber Optic Cable — TV FO
- Designated U/G Fiber Optic Cable (S.U.E.*) — TV FO

GAS:

- Gas Valve
- Gas Meter
- Recorded U/G Gas Line — G
- Designated U/G Gas Line (S.U.E.*) — G
- Above Ground Gas Line — A/G Gas

SANITARY SEWER:

- Sanitary Sewer Manhole
- Sanitary Sewer Cleanout
- U/G Sanitary Sewer Line — SS
- Above Ground Sanitary Sewer — A/G Sanitary Sewer
- Recorded SS Forced Main Line — FSS
- Designated SS Forced Main Line (S.U.E.*) — FSS

MISCELLANEOUS:

- Utility Pole
- Utility Pole with Base
- Utility Located Object
- Utility Traffic Signal Box — S
- Utility Unknown U/G Line — ?UTL
- U/G Tank; Water, Gas, Oil
- A/G Tank; Water, Gas, Oil
- U/G Test Hole (S.U.E.*) — TH
- Abandoned According to Utility Records — AATUR
- End of Information — E.O.I.

PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	OSM-2

PROJECT ENGINEER

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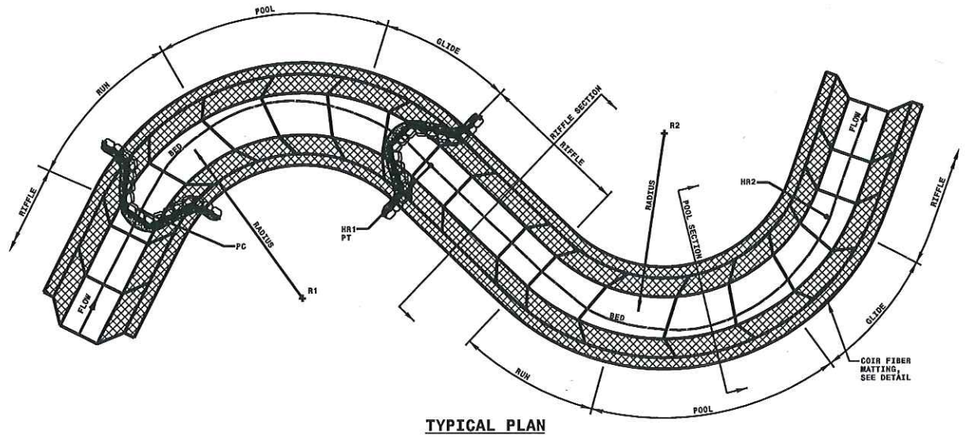
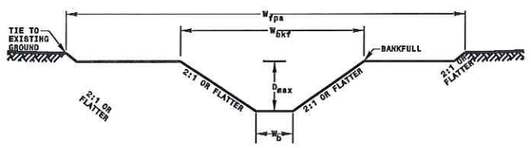
NORTH CAROLINA PROFESSIONAL SEAL 22963 ENGINEER WILLIAM SCOTT HUNT, III
11.18.2013

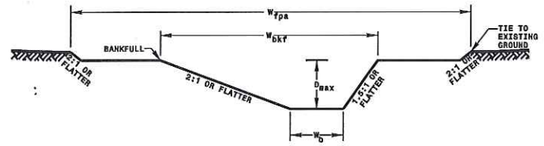
#1 CHANNEL TYPICAL DETAIL
NOT TO SCALE



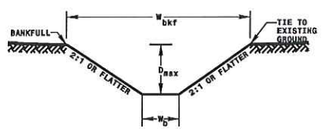
TYPICAL PLAN



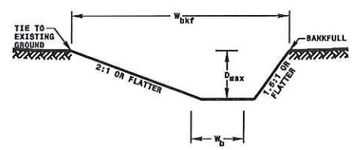
TYPICAL RIFFLE WITH BANKFULL BENCH



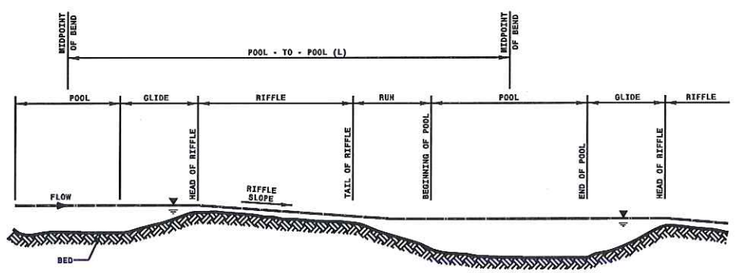
TYPICAL POOL WITH BANKFULL BENCH



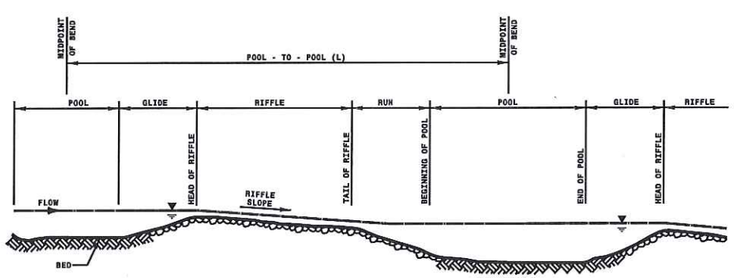
TYPICAL RIFFLE



TYPICAL POOL

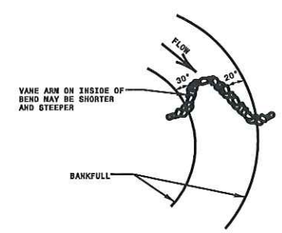


TYPICAL PROFILE



TYPICAL PROFILE FOR ARMORED RIFFLE SECTION

CHANNEL TYPICAL DETAIL
NOT TO SCALE



CROSS VANE CONSTRUCTION IN MEANDER-BEND
PLAN VIEW

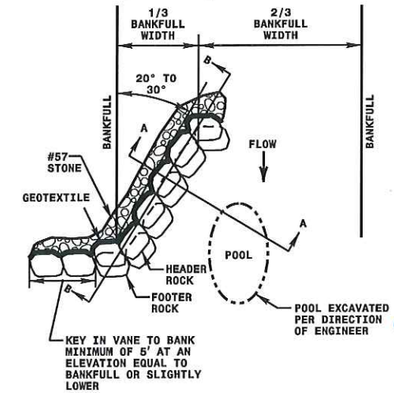
W_{bkf} = BANKFULL WIDTH
D_{max} = MAXIMUM DEPTH
W_b = BOTTOM WIDTH
W_{fpa} = FLOOD PRONE AREA WIDTH

CROSS-SECTION DIMENSIONS

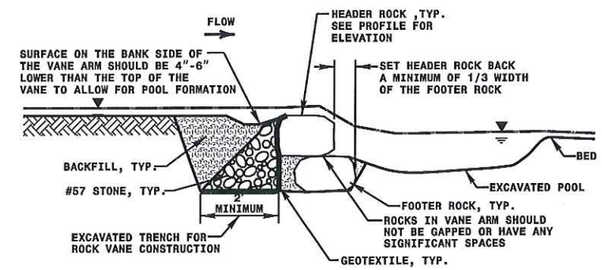
SITE	RIFFLE W_{bkf}	RIFFLE D_{max}	RIFFLE W_b	RIFFLE W_{fpa}	POOL W_{bkf}	POOL D_{max}	POOL W_b	POOL W_{fpa}
I	26	2.3	14	36	30.1	3.5	8	36
E	30	2.0	16	40	36.0	4.4	10	40

NOTES:
1. THE COORDINATES FOR EACH CENTER OF RADIUS ARE INDICATED ON THE PLAN SHEETS.

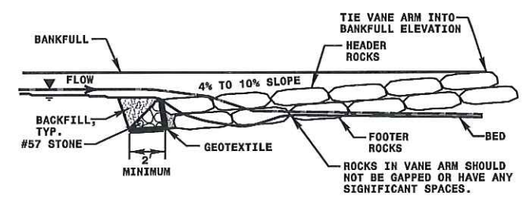
#2 ROCK VANE DETAIL
NOT TO SCALE



PLAN VIEW



SECTION A-A



SECTION B-B

	BOULDER DIMENSIONS (FT)		
ALL SITES	HEIGHT	LENGTH	WIDTH
	2	4	3

*BOULDERS FOR BOULDER TOES MAY BE LARGER

NOTES:
1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4. COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
5. POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

REVISIONS

11/18/2013
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PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	OSM-2A

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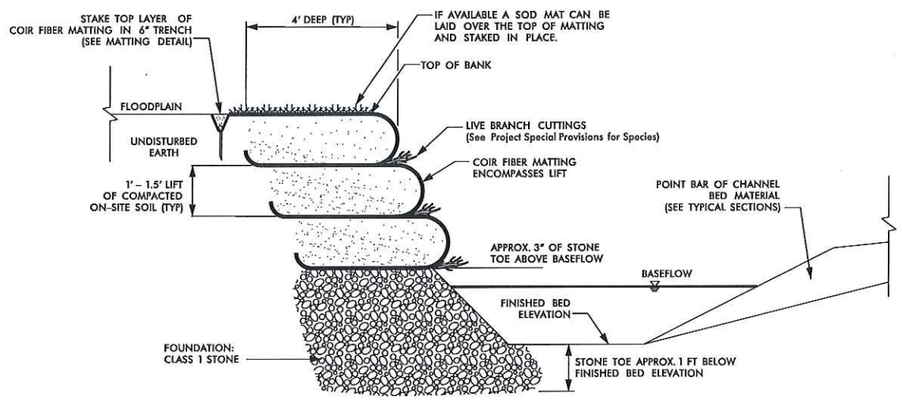
NORTH CAROLINA PROFESSIONAL SEAL 22967 ENGINEER WILLIAM SCOTT HUNT III
11.18.2013

#3 GEOLIFT

NOT TO SCALE

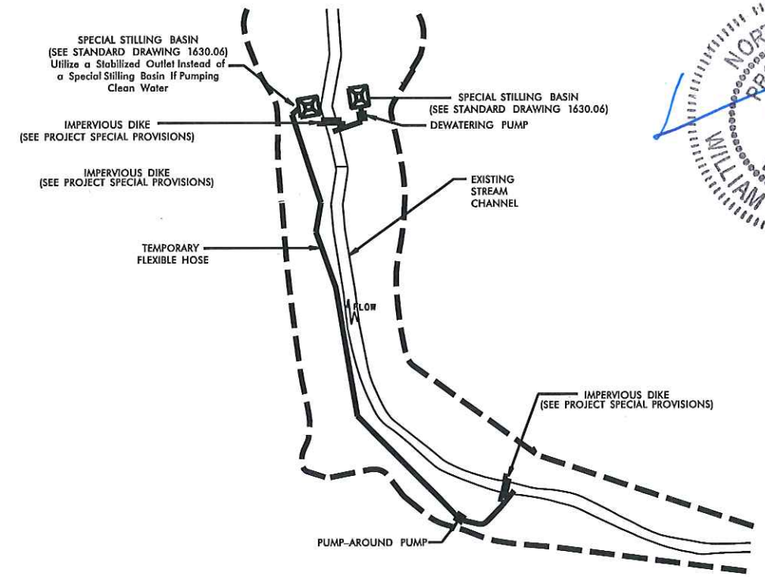


NOTES:

1. WHEN GEOLIFTS ARE BUILT ABOVE ROOTWAD CLUSTER, USE LARGE STONE BACKFILL BEHIND ROOT MASS TO BUILT FOUNDATION.
2. SPECIES TO USE MAY INCLUDE:
   NINE BARK – *Physocarpus opulifolias*
   ELDERBERRY – *Sambucus canadensis*
   SILKY WILLOW – *Salix sericea*
   SILKY DOGWOOD – *Cornus amomum*
3. VEGETATION SHOULD BE CUT TO 4 ft LENGTHS (NORMALLY AVAILABLE AS A BRUSH BUNDLE)
4. COIR MATTING IN ROLLS OF 6.6 ft WIDE ARE OFTEN USED FOR LIFTS. THIS IS CUT INTO 9 ft LENGTHS AND OVERLAPPED LATERALLY DOWN THE BANK TO FORM THE LIFT. THIS PROVIDES 4 ft OF MATERIAL UNDER THE LIFT, 1 – 1.5 ft FOR THE WRAP AND 3.5 – 4 ft OVER THE TOP OF THE LIFT.
5. WHERE AVAILABLE A SOD MAT CAN BE CUT AND LAID OVER THE TOP LIFT AND STAKED IN PLACE TO FORM A NATURAL GRASS SURFACE.

#4 EXAMPLE OF PUMP-AROUND OPERATION

NOT TO SCALE



NOTES:

1. ALL EXCAVATION SHALL BE PERFORMED IN ONLY DRY OR ISOLATED SECTIONS OF CHANNEL.
2. IMPERVIOUS DIKES ARE TO BE USED TO ISOLATE WORK FROM STREAM FLOW WHEN NECESSARY
3. ALL GRADED AREAS SHALL BE STABILIZED WITHIN 24 HOURS.
4. MAINTENANCE OF STREAM FLOW OPERATIONS SHALL BE INCIDENTAL TO THE WORK. THIS INCLUDES POLYETHYLENE SHEETING, DIVERSION PIPES, PUMPS AND HOSES.
5. PUMPS AND HOSES SHALL BE OF SUFFICIENT SIZE TO DEWATER THE WORK AREA.

SEQUENCE OF CONSTRUCTION FOR TYPICAL WORK AREA

1. INSTALL SPECIAL STILLING BASIN(S).
2. INSTALL UPSTREAM PUMP AND TEMPORARY FLEXIBLE HOSE.
3. PLACE UPSTREAM IMPERVIOUS DIKE AND BEGIN PUMPING OPERATIONS FOR STREAM DIVERSION.
4. PLACE DOWNSTREAM IMPERVIOUS DIKE AND PUMPING APPARATUS. DEWATER ENTRAPPED AREA. AREA TO BE DEWATERED SHALL BE EQUAL TO ONE DAY'S WORK.
5. PERFORM STREAM RESTORATION WORK IN ACCORDANCE WITH THE PLANS.
6. EXCAVATE ANY ACCUMULATED SILT AND DEWATER BEFORE REMOVAL OF IMPERVIOUS DIKES. REMOVE IMPERVIOUS DIKES, PUMPS, AND TEMPORARY FLEXIBLE HOSE. (DOWNSTREAM IMPERVIOUS DIKES FIRST).
7. ALL GRADING AND STABILIZATION MUST BE COMPLETED IN ONE DAY WITHIN THE PUMP AROUND AREAS BETWEEN THE IMPERVIOUS DIKES. THE IMPERVIOUS DIKE LOCATIONS AS SHOWN ON THIS SHEET ONLY SHOW THE UPPER AND LOWER EXTENT OF WORK FOR EACH STREAM SEGMENT. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE LOCATION OF THE IMPERVIOUS DIKE(S) FOR EACH DAY'S WORK.
8. REMOVE SPECIAL STILLING BASIN(S) AND BACKFILL. STABILIZE DISTURBED AREA WITH SEED AND MULCH.

REVISIONS

11/18/2013
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PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	OSM-28

PROJECT ENGINEER

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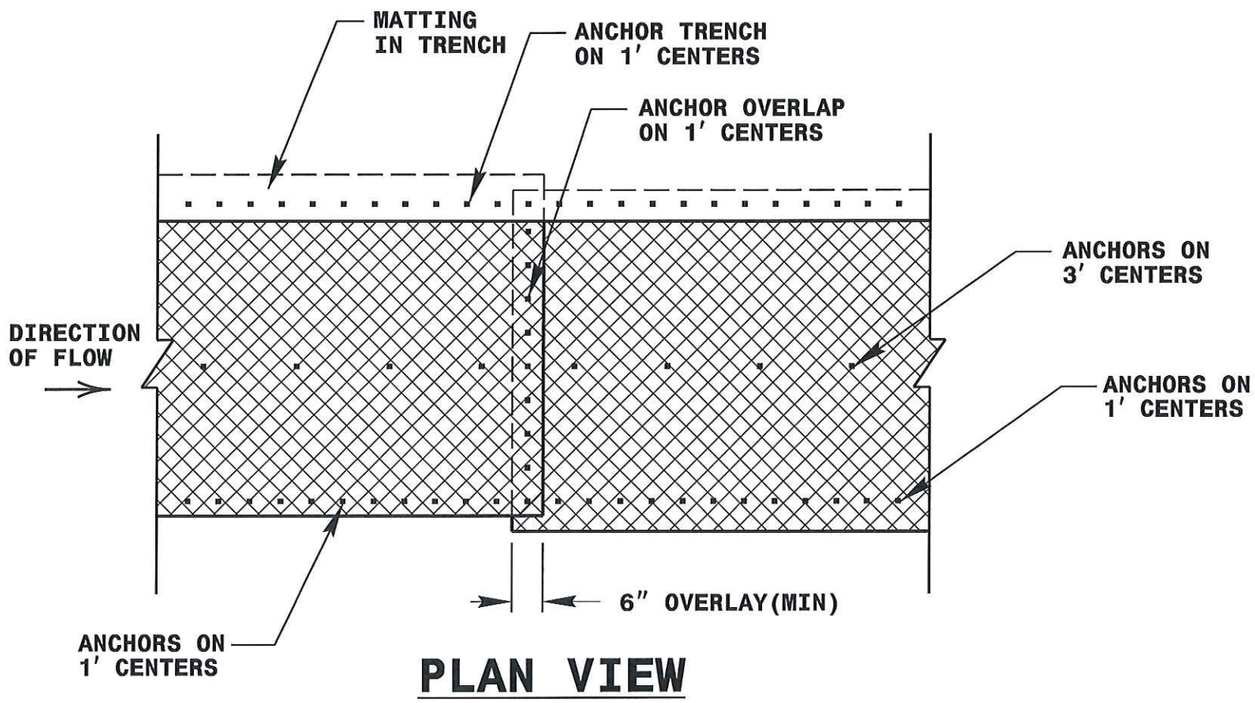
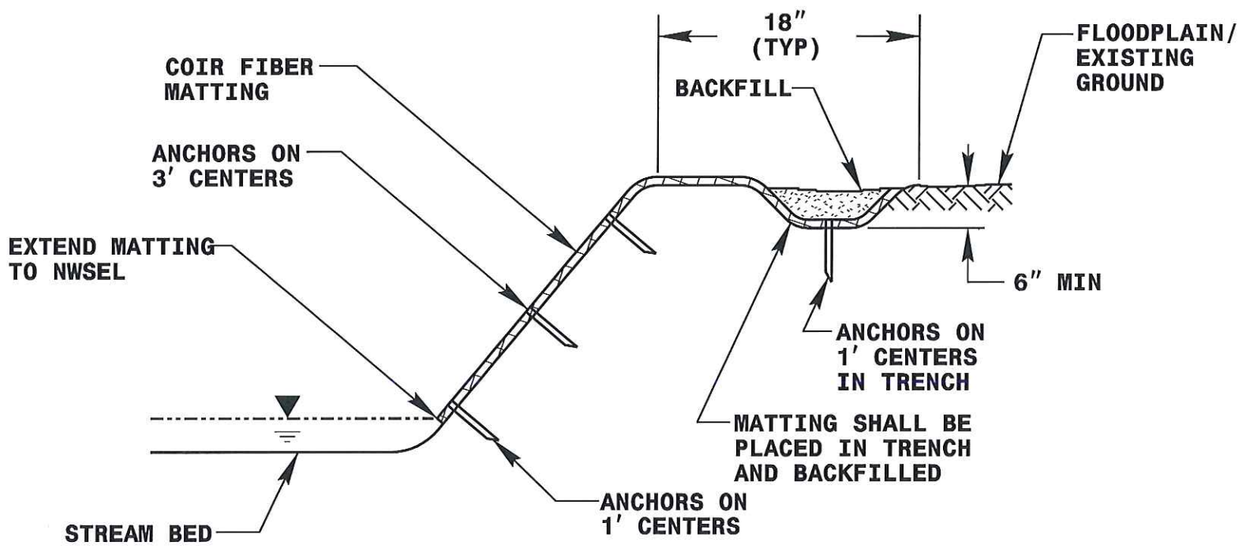
11.18.2013

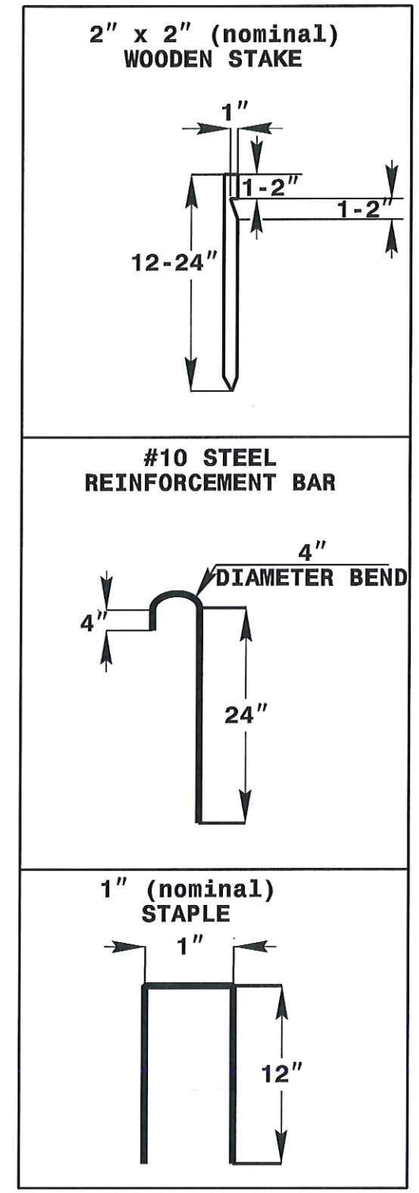
REVISIONS



PLAN VIEW



TYPICAL CROSS SECTION



ANCHOR OPTIONS

#5 COIR FIBER MATTING DETAIL

NOT TO SCALE

PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	OSM-2C

PROJECT ENGINEER

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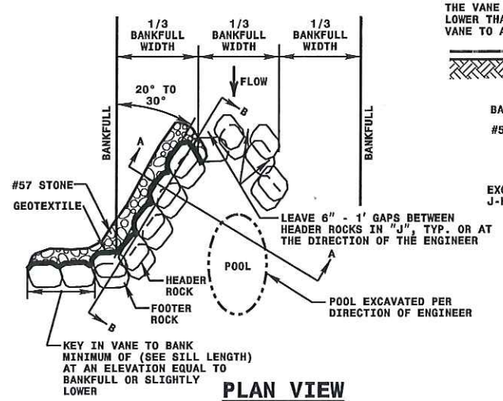
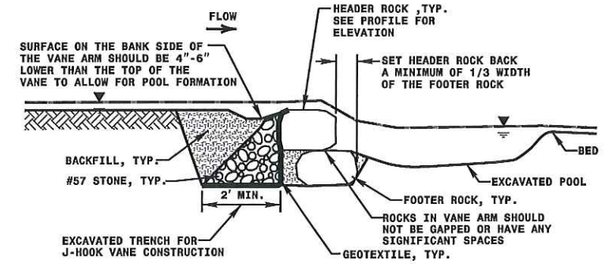
11.18.2013

#6 J-HOOK VANE DETAIL

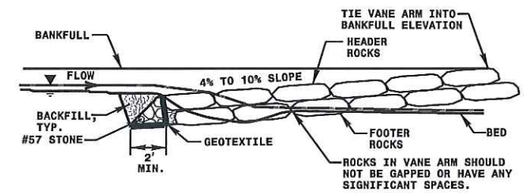
NOT TO SCALE



PLAN VIEW



SECTION A-A



SECTION B-B

	SITE I	SITE E
VANE TO BANK ANGLE	22°	22°
Wbkf	26'	30'
SILL LENGTH	4'	5'
INVERT LENGTH	8.67'	10'
VANE ARM LENGTH	23'	27'
SLOPE	10%	10%

	BOULDER DIMENSIONS (FT)		
ALL SITES	HEIGHT	LENGTH	WIDTH
	2	4	3

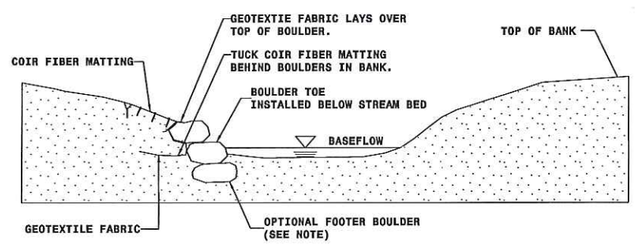
*BOULDERS FOR BOULDER TOES MAY BE LARGER

NOTES:

1. DEEPEST PART OF POOL TO BE IN LINE WITH WHERE VANE ARM TIES INTO BANKFULL.
2. DO NOT EXCAVATE POOL TOO CLOSE TO FOOTER BOULDERS.
3. CLASS "A" STONE CAN BE USED TO REDUCE VOIDS BETWEEN HEADERS AND FOOTERS.
4. COMPACT BACKFILL TO EXTENT POSSIBLE OR AT THE DIRECTION OF THE ENGINEER.
5. POOL DEPTH SHOULD BE 2 TO 3 TIMES BANKFULL DEPTH.

#7 BOULDER TOE

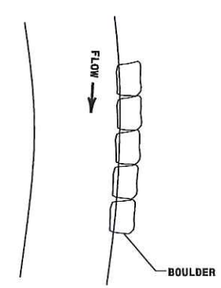
NOT TO SCALE



CROSS SECTION VIEW

NOTES:

1. BOULDERS SHOULD EXTEND BELOW SCOUR DEPTH AND ABOVE BASE FLOW WATER LEVELS. FOOTER BOULDERS MAY BE REQUIRED, DEPENDING ON EXISTING BED MATERIAL.
2. TOE BOULDERS SHALL BE TOUCHING SO THAT VOID SPACE IS MINIMIZED.
3. THE MAJORITY OF THE BOULDER SHOULD BE BURIED IN THE STREAM BANK, LEAVING FACE OF BOULDER EXPOSED TO FLOW.
4. GEOTEXTILE FABRIC SHOULD BE PLACED BEHIND BOULDER TOE, BURIED BELOW BOULDER DEPTH, AND EXTEND INTO THE BANK.
5. COIR FIBER MATTING SHOULD BE PLACED AGAINST BOULDER BEFORE BACKFILL, THEN FOLDED BACK OVER SEEDED BANK SLOPE.
6. BOULDER TOE SHOULD BE BACKFILLED AND COMPACTED, VOID SPACE BETWEEN FABRIC AND BOULDER TOE SHOULD BE MINIMIZED.
7. BOULDER TOE SHOULD NOT EXCEED MAXIMUM BANKFULL ELEVATION.



PLAN VIEW

REVISIONS

11/18/2013
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CONSTRUCTION SEQUENCE

The contractor is responsible for following the construction sequence in accordance with the plans and provisions, as directed by the Engineer. Construction shall proceed in the following manner unless otherwise directed by the Engineer:

- Mobilize equipment and materials to the site.
- The contractor shall store all equipment and materials in the staging areas depicted on Sheets OSM-8 and OSM-9 or as directed by the Engineer.
- Install all erosion control measures shown in the plans or as directed by the Engineer.
- The contractor shall layout the proposed structures, grading areas, geolift areas and other repair areas as shown in the plans. The Engineer must inspect and approve the layout before construction may begin.
- The contractor shall utilize the access plans as shown on OSM-8 and OSM-9 unless other access plans are approved by the Engineer. The contractor shall reduce the amount of disturbance to only what will be needed to complete the repair work.
- The contractor shall set up the pump-around operation as shown in the details. All work must be done in the dry.
- The contractor shall only begin work on the length of channel that can be constructed and stabilized in one day. The pump-around operation shall continue 24 hours a day if for any reason the section of stream being worked on that day has not been completed by the end of the day.
- At the end of each days construction work, the contractor shall seed all disturbed areas and cover the stream banks with coir fiber matting. In addition, the contractor shall be responsible for maintaining all temporary erosion control measures on a daily basis throughout the construction.
- Upon completion of all work at the sites, the contractor will be responsible for seeding and mulching all disturbed areas and removal of all temporary erosion control devices.

REVISIONS

STRUCTURE TABLE

#	STRUCTURE	STATION	ELEVATION	BACK ELEVATION	ACTION
SITE I					
1	Vane	11+02	2,255.21	N/A	Repair
2	J-hook	11+76	2,255.00	2,257.30	Construct
3	Geolift	11+90 to 12+35			Construct
4	Vane	12+36	2,254.60	2,256.90	Construct
5	J-hook	12+75	2,253.75	2,256.05	Construct
6	J-hook	13+80	2,253.00	2,255.30	Construct
7	Vane	14+30	2,252.50	2,254.80	Construct
8	J-hook	15+30	2,251.60	2,254.85	Construct
9	J-hook	16+10	2,250.10	2,252.40	Construct
10	Boulder Toe	16+50 to 16+90		N/A	Construct
11	Boulder Toe	16+90 to 17+70		N/A	Construct
SITE E					
1	J-hook	12+40	2,196.20	2,198.90	Construct
2	Vane	12+90	2,196.00	2,198.70	Construct
3	J-hook	14+76	2,195.20	2,197.90	Construct
4	Geolift	15+00 to 15+45			Construct
5	Vane	15+20	2,195.00	2,197.70	Construct
6	J-hook	16+80	2,193.50	2,196.20	Construct
7	Geolift	16+95 to 17+50			Construct
8	Vane	17+40	2,193.00	2,195.70	Construct
9	Vane	18+11	2193.62	2,195.62	Repair
10	Vane	18+45	2,192.94	2,194.80	Repair
11	Boulder Toe	19+87 to 20+20		N/A	Repair

NOTE:

1. STATION REFERS TO THE UPSTREAM END OF THE VANE ARM OR THE INVERT OF THE HEADER ROCK IN THE CENTER OF THE CHANNEL ON CROSS VANES.
2. ELEVATION REFERS TO THE STREAMBED PROFILE ELEVATION AT THE CORRESPONDING STATION. WHICH IS THE ELEVATION THAT THE VANE INTERSECTS THE STREAMBED.
3. BACK ELEVATION REFERS TO THE ELEVATION ON THE HIGHEST ROCK AT THE BACK OF THE VANE ARM.

SUMMARY OF QUANTITIES

ITEM NUMBER	SEC	QUANTITIES	Quantity	Unit
00001000000-N	800	Mobilization	1.00	LS
6133000000-N	SP	Grading for Mitigation (Waste 80 CY)	1.00	LS
6133000000-N	SP	Construction Surveying for Mitigation	1.00	LS
1077000000-E	SP	#57 Stone	93.00	TON
3628000000-E	876	Rip Rap, Class I	63.00	TON
3642000000-E	876	Rip Rap, Class A	71.00	TON
3656000000-E	876	Geotextile for Drainage, Type 2	800.00	SY
6133000000-N	SP	Diverson Pumping For Mitigation	1.00	LS
3651000000-E	SP	Boulders	516.00	TON
6012000000-E	1610	Sediment Control Stone	10.00	TON
6070000000-N	1639	Special Stilling Basin	4.00	EA
6037000000-E	SP	Coir Fiber Matting	862.00	SY
6084000000-E	1660	Seeding and Mulching	2.00	AC
6000000000-E	1605	Temporary Silt Fence	1000.00	LF
6009000000-E	1610	Stone for Erosion Control, Class B	10.00	TON
6006000000-E	1610	Stone for Erosion Control, Class A	50.00	TON
6030000000-E	1630	Silt Excavation	10.00	CY
6018000000-E	1620	Seed for Temporary Seeding	50.00	LB
6021000000-E	1620	Fertilizer for Temporary Seeding	0.50	TON
6015000000-E	1615	Temporary Mulching	1.00	AC
6132000000-E	SP	Live Plant Material (5' Bundle)	40.00	Bundles
6132000000-E	SP	Temporary Stream Crossing	2.00	EA
3566000000-E	867	Woven Wire Fence Reset	100.00	LF
6042000000-E	1632	1/4" Hardware Cloth	50.00	LF
6029000000-E	SP	Safety Fence	100.00	LF
6036000000-E	1631	Matting for Erosion Control	2000.00	SY

EARTHWORK SUMMARY

IN CUBIC YARDS

LOCATION	UNCLASSIFIED EXCAV. (CU.YD.)	FILL (CU.YD.)	WASTE (CU.YD.)
Site I	54.1	16.4	37.7
Site E	50.7	9.1	41.6
SUBTOTAL	104.8	25.5	79.3

PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	OSM-3

PROJECT ENGINEER

PROJECT ENGINEER

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NORTH CAROLINA PROFESSIONAL SEAL 22967 ENGINEER WILLIAM SCOTT HUNT, III
11.18.2025

SITE I

GRAPHIC SCALE
20 10 0 20 40
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	OSM-4

PROJECT ENGINEER

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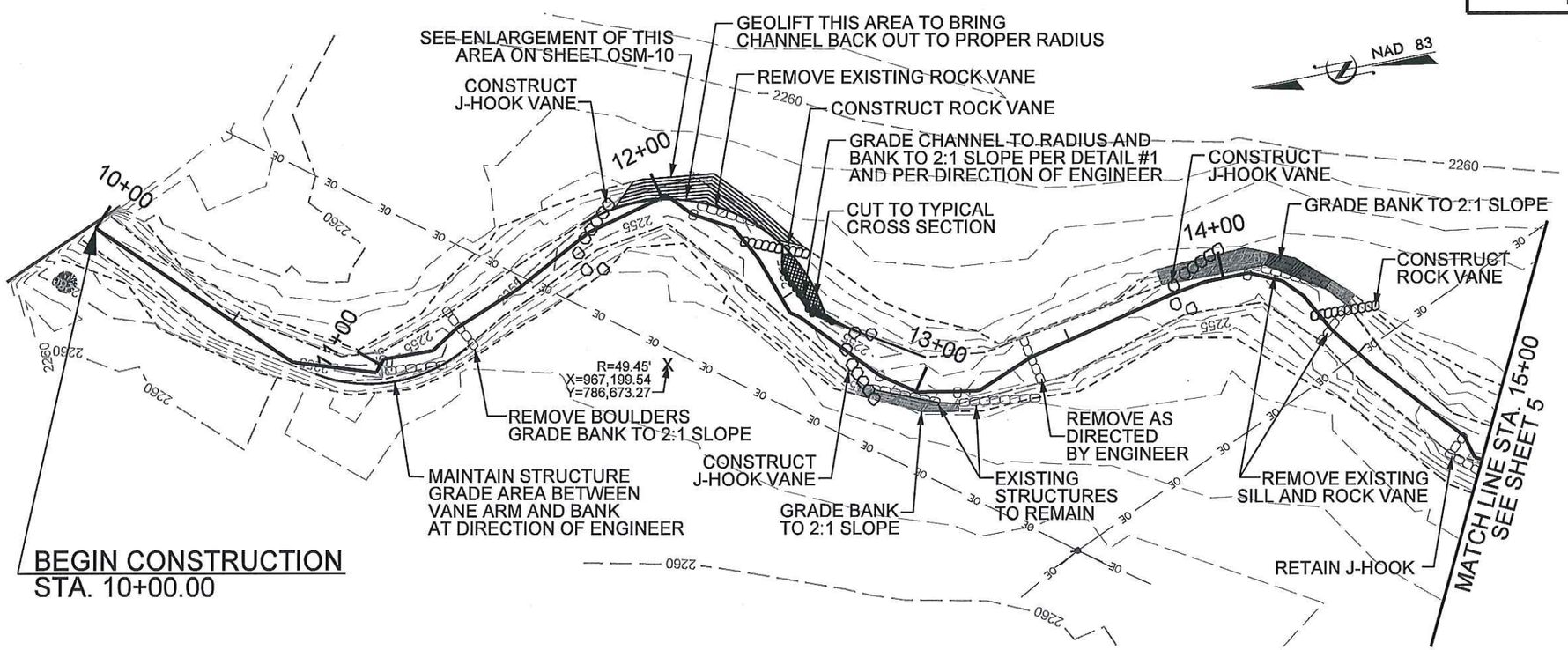
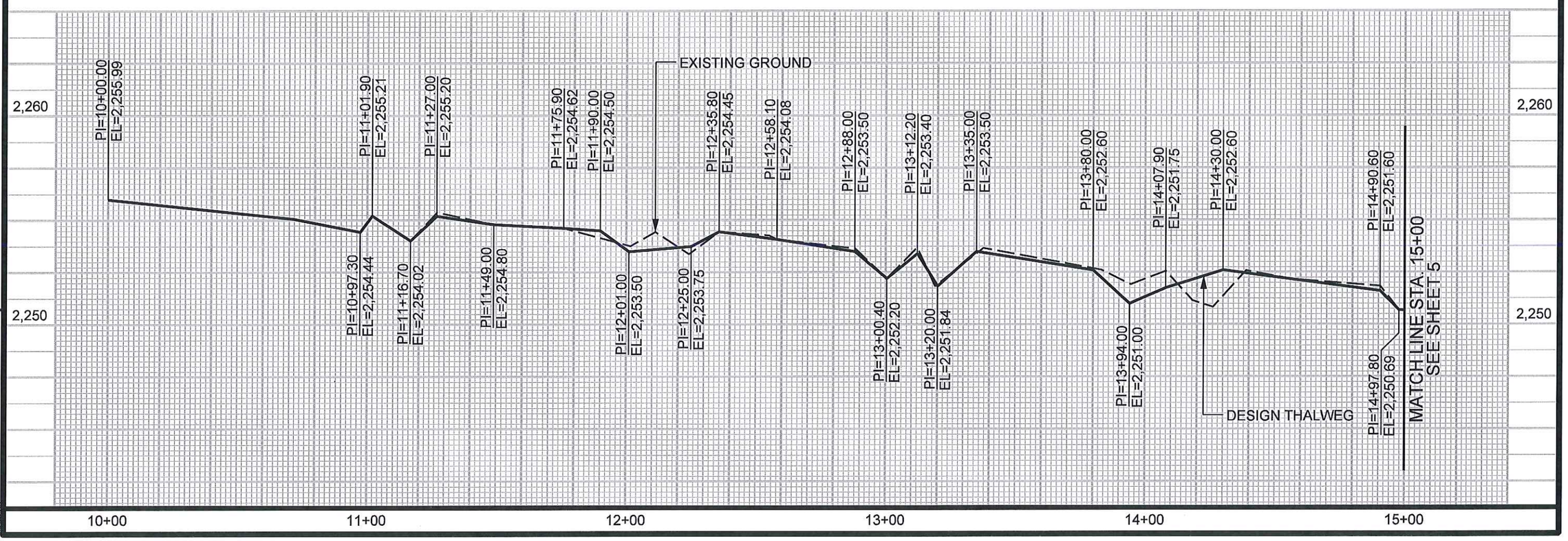
NORTH CAROLINA PROFESSIONAL SEAL 22967 ENGINEER WILLIAM SCOTT HUNT, III
11-18-2013





REVISIONS

11/18/2013
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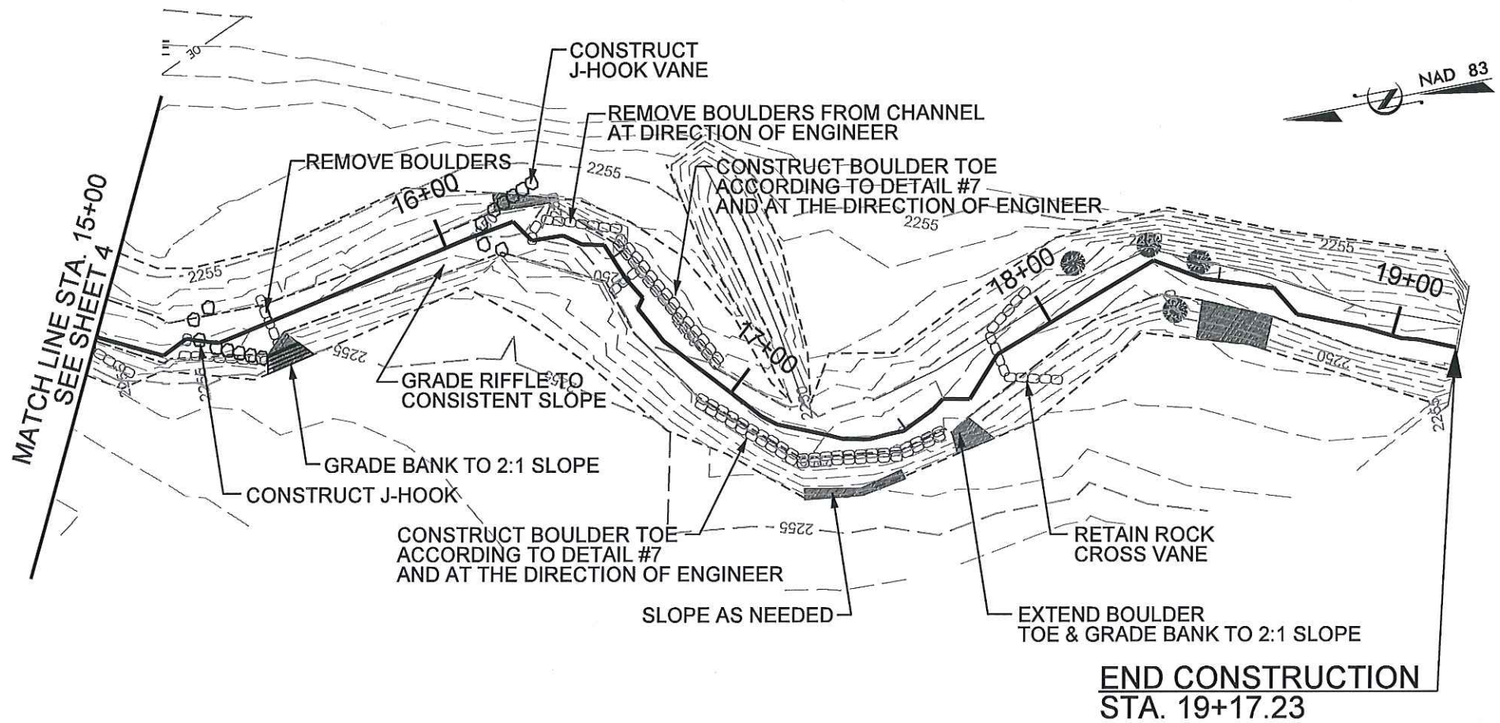
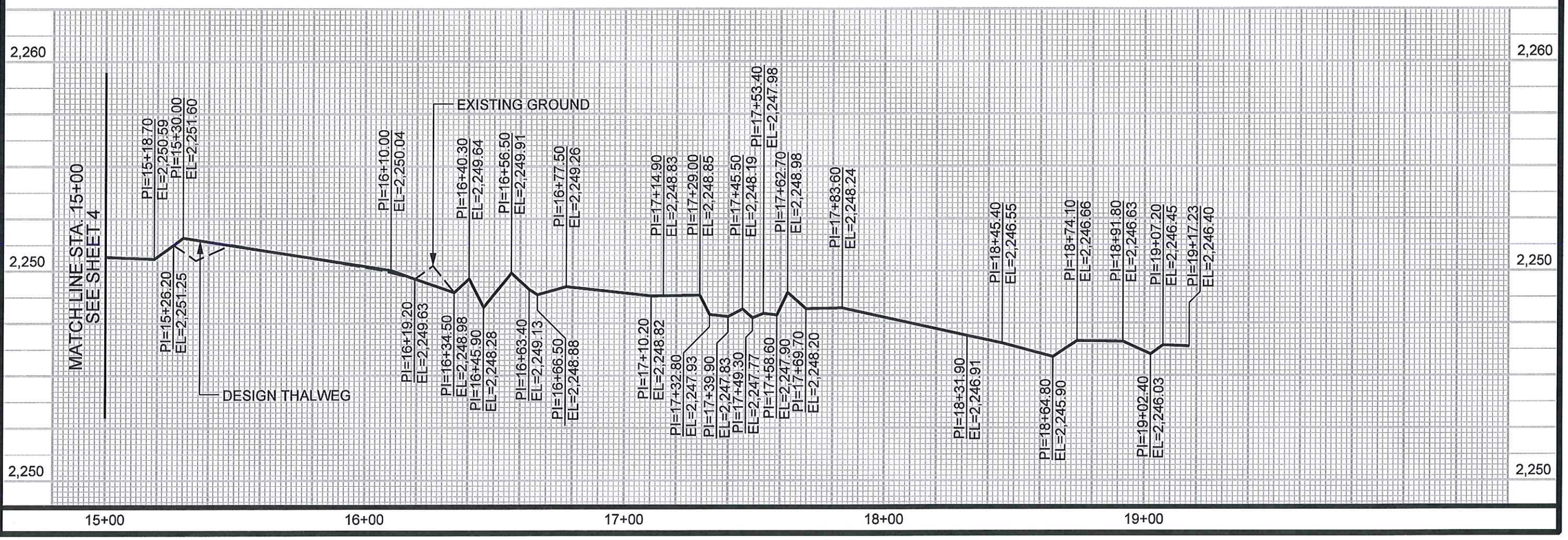
SITE I





GRAPHIC SCALE
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PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	OSM-5

PROJECT ENGINEER

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NORTH CAROLINA PROFESSIONAL SEAL 22967 ENGINEER WILLIAM SCOTT HUNT, III
11.18.2013

REVISIONS

11/18/2013
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SITE E

GRAPHIC SCALE
20 10 0 20 40
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	OSM-6

PROJECT ENGINEER

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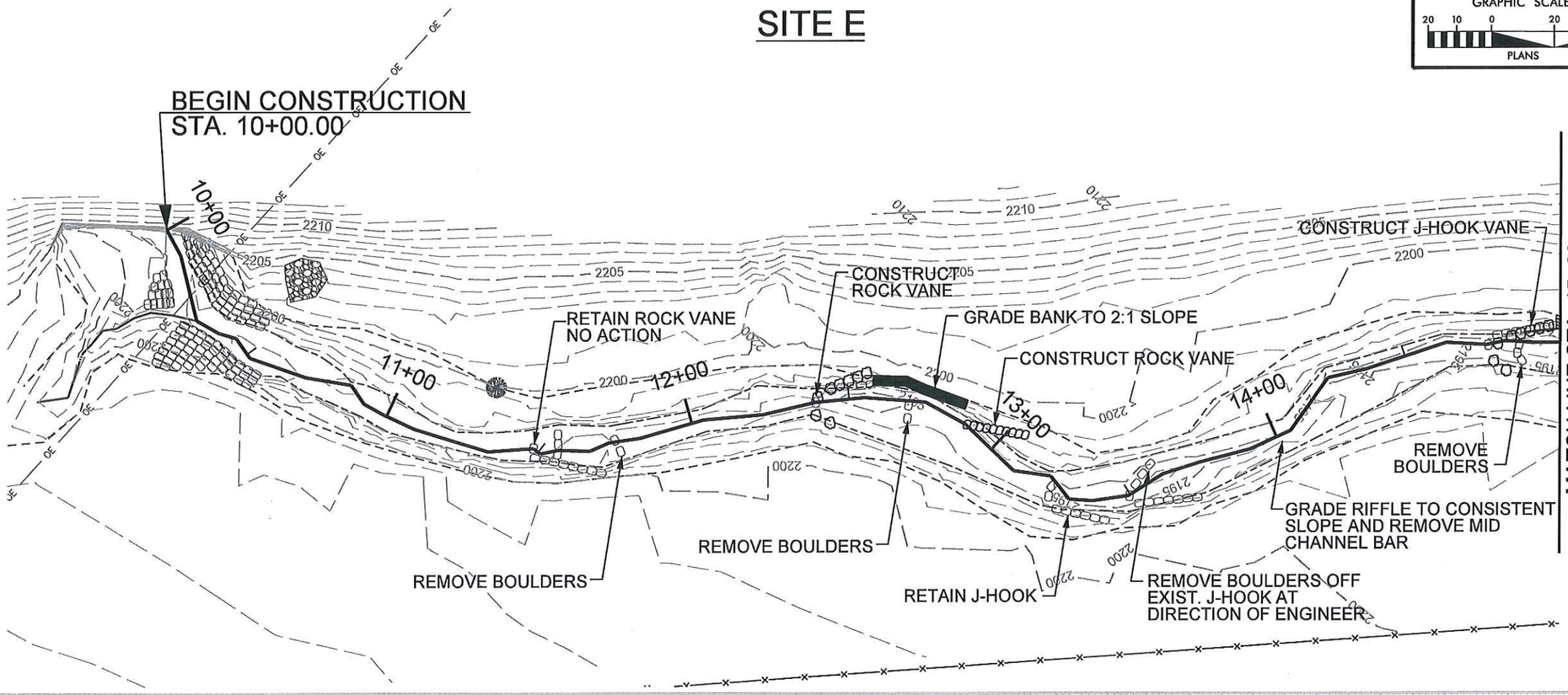

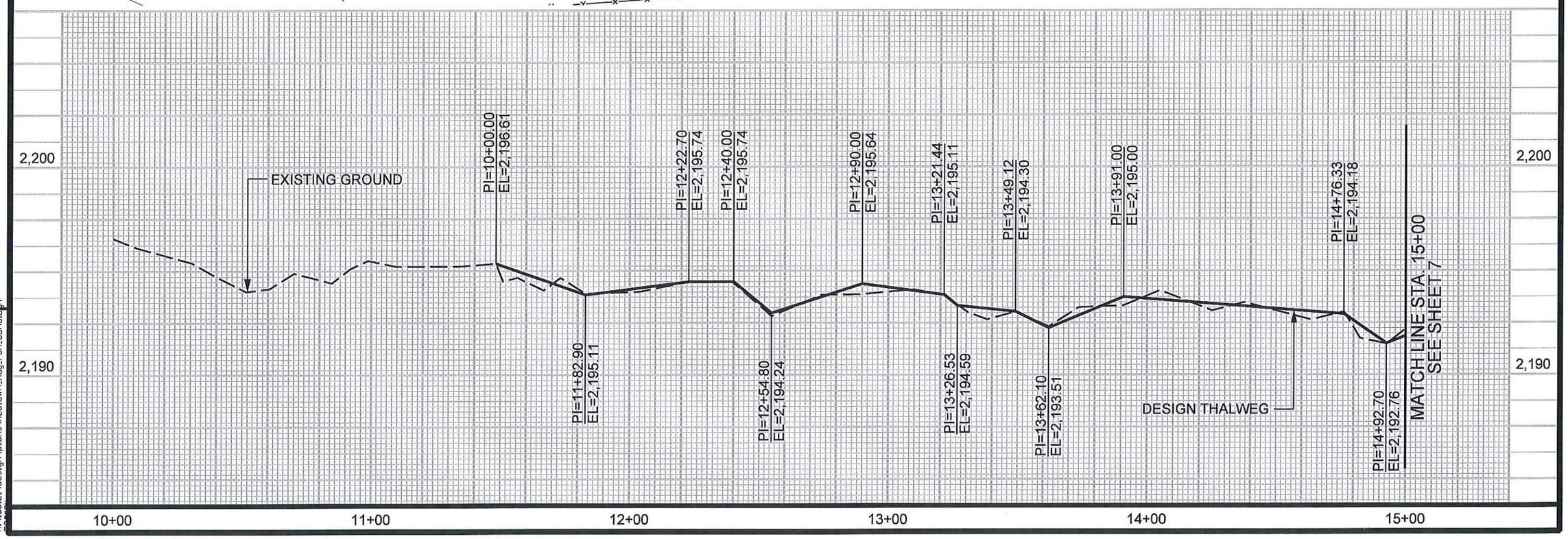

REVISIONS

11/18/2013
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PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	OSM-7

PROJECT ENGINEER

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GRAPHIC SCALE
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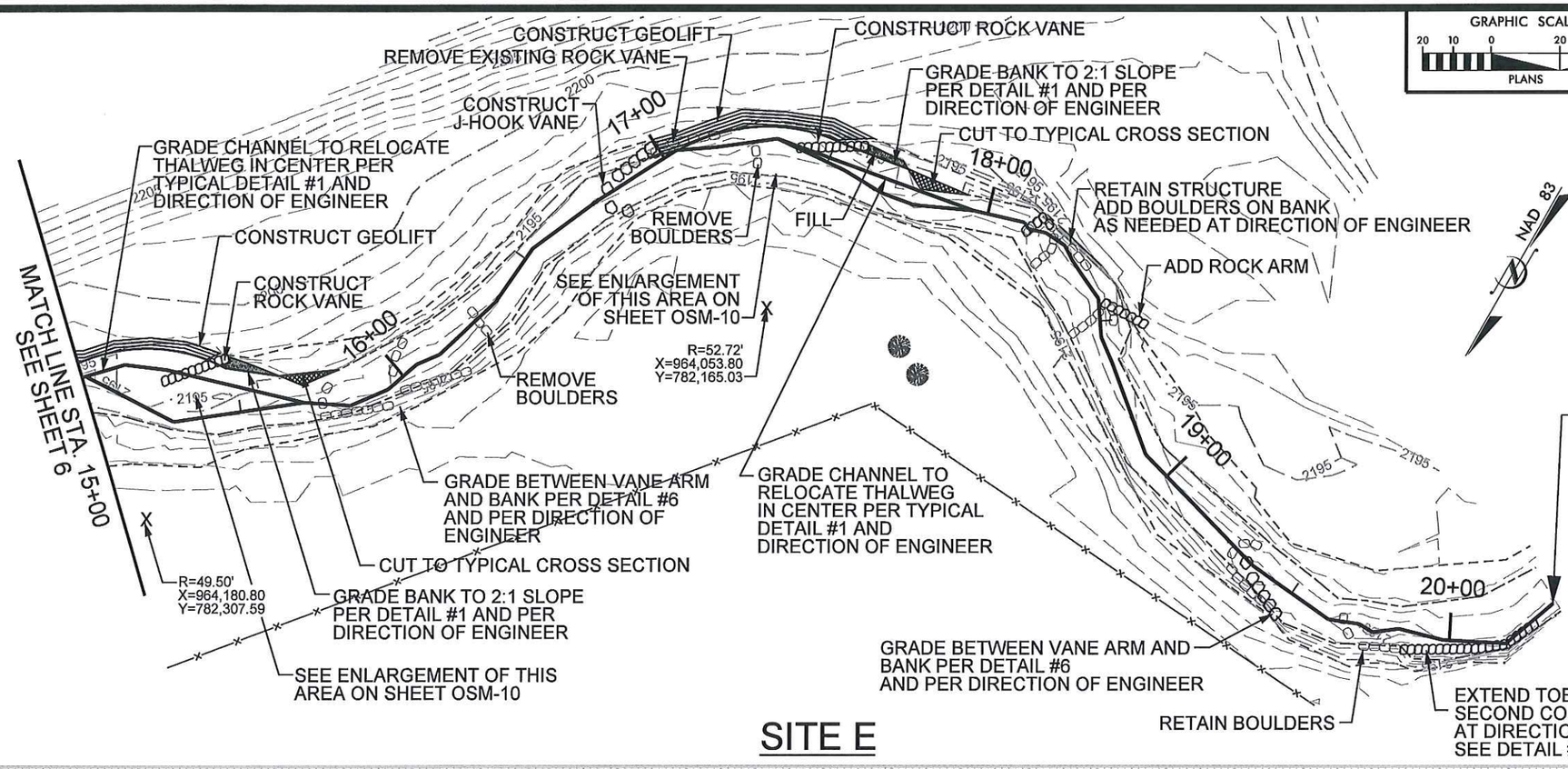
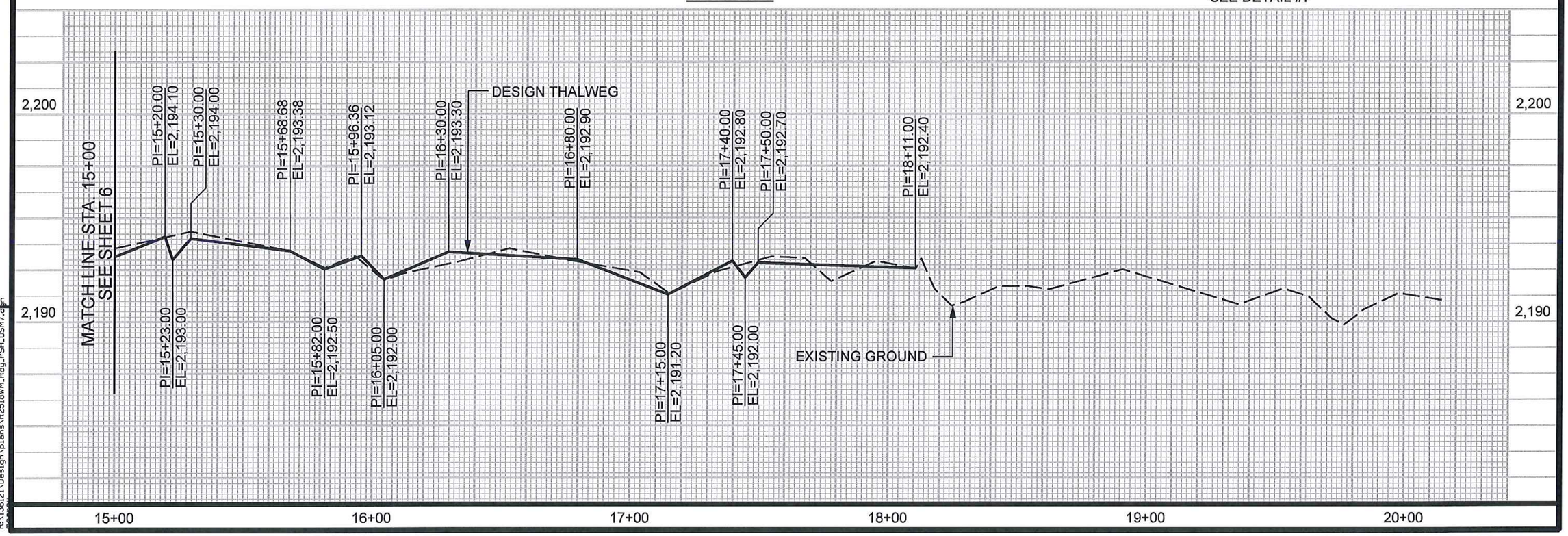
PLANS



NORTH CAROLINA PROFESSIONAL SEAL 22967 ENGINEER WILLIAM SCOTT HUNT, III

11/18/2013

SITE E



REVISIONS

11/18/2013
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PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	OSM-8

PROJECT ENGINEER

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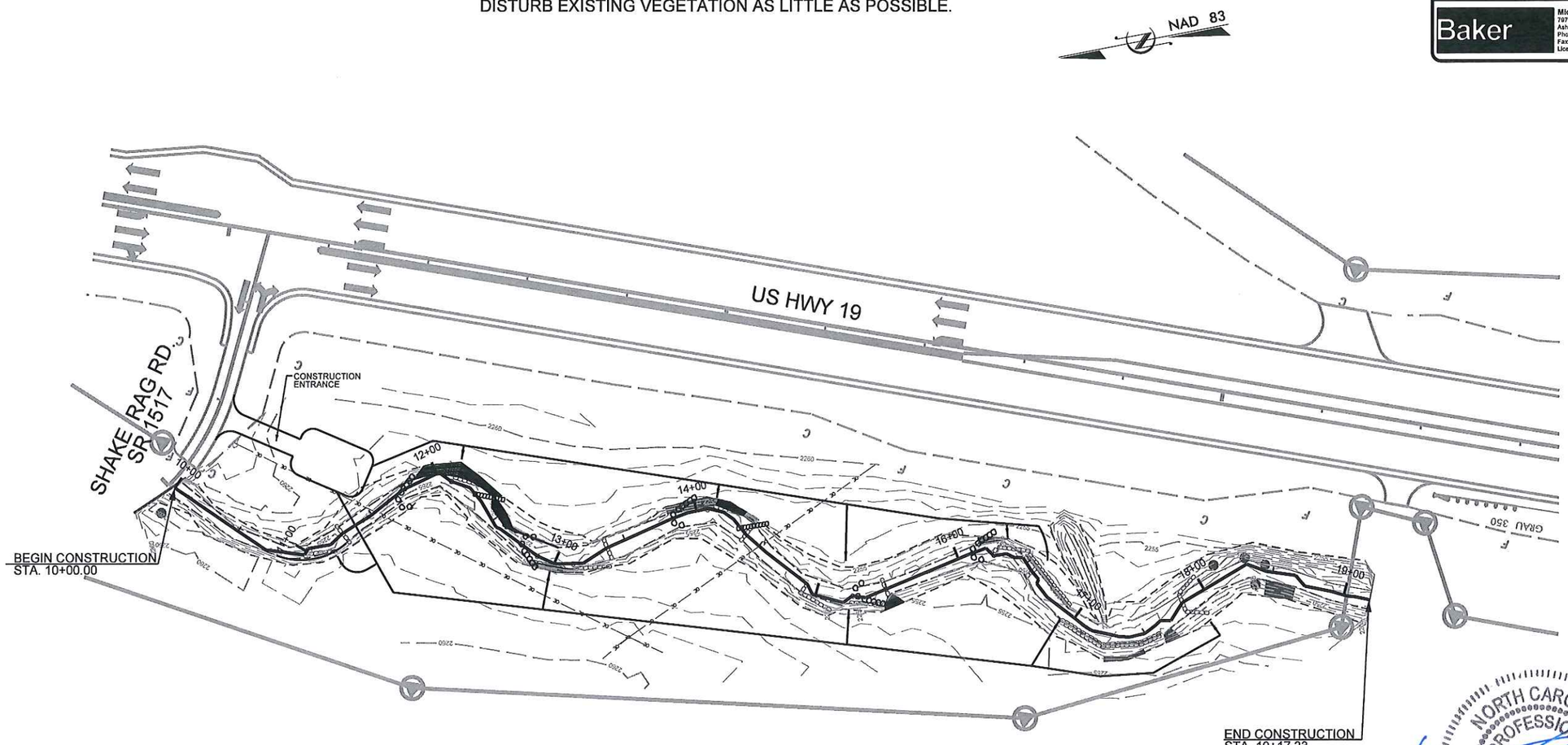
GRAPHIC SCALE
40 20 0 40 80
PLANS

SITE I

ACCESS PLAN FOR MOVING TO AREAS ALONG CHANNEL NEEDING REPAIRS. MOVEMENT OVER THE DESCRIBED PATH SHOULD BE KEPT TO A MINIMUM IN ORDER TO DISTURB EXISTING VEGETATION AS LITTLE AS POSSIBLE.



NORTH CAROLINA PROFESSIONAL SEAL 22967 ENGINEER WILLIAM SCOTT HUNT, III
11.18.2013

REVISIONS

11/18/2013
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PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	OSM-9

PROJECT ENGINEER

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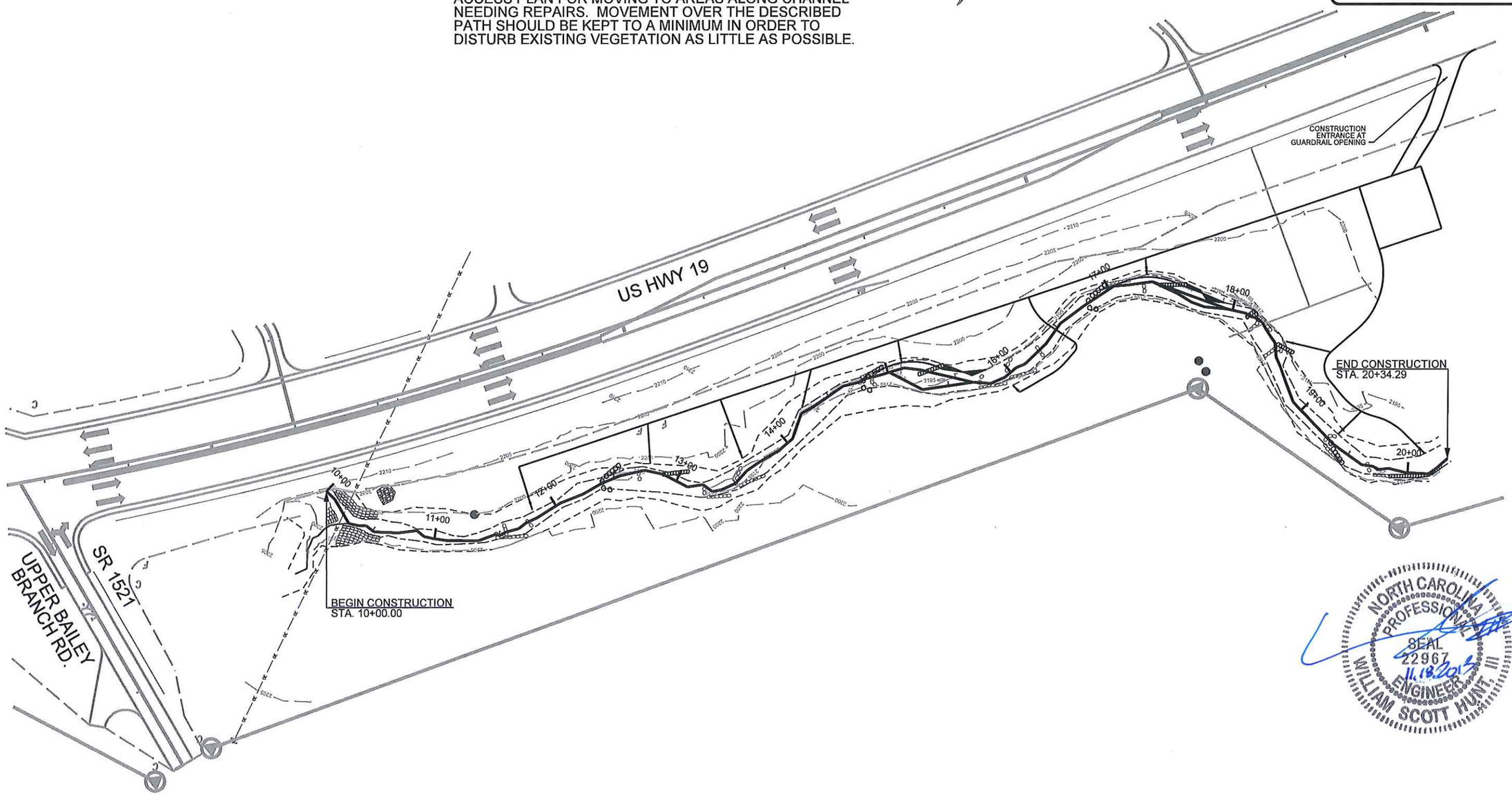
GRAPHIC SCALE
40 20 0 40 80
PLANS

SITE E

ACCESS PLAN FOR MOVING TO AREAS ALONG CHANNEL NEEDING REPAIRS. MOVEMENT OVER THE DESCRIBED PATH SHOULD BE KEPT TO A MINIMUM IN ORDER TO DISTURB EXISTING VEGETATION AS LITTLE AS POSSIBLE.



NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 22967 WILLIAM SCOTT HUNT, III
11.18.2013

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PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	OSM-10

PROJECT ENGINEER

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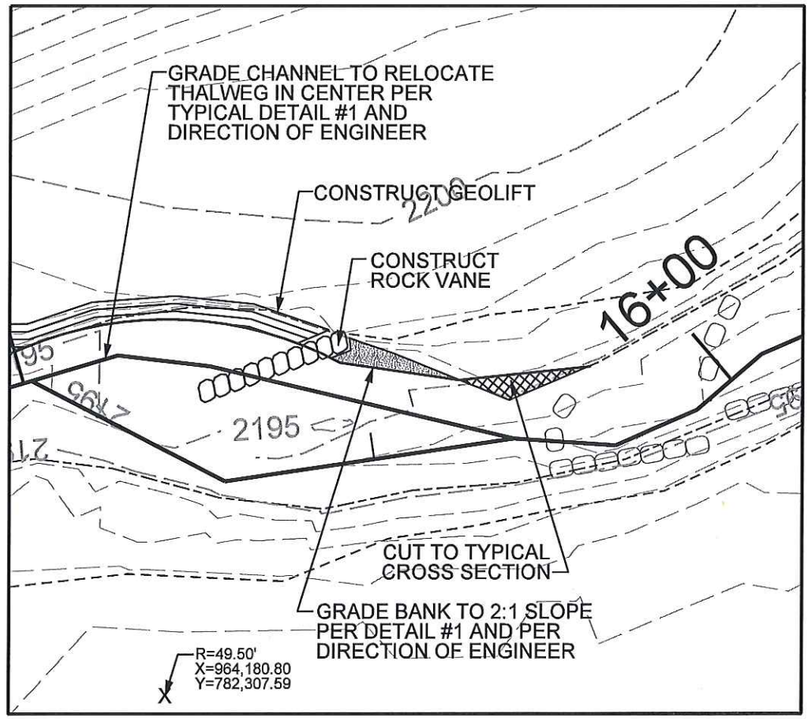
License #: F-1084

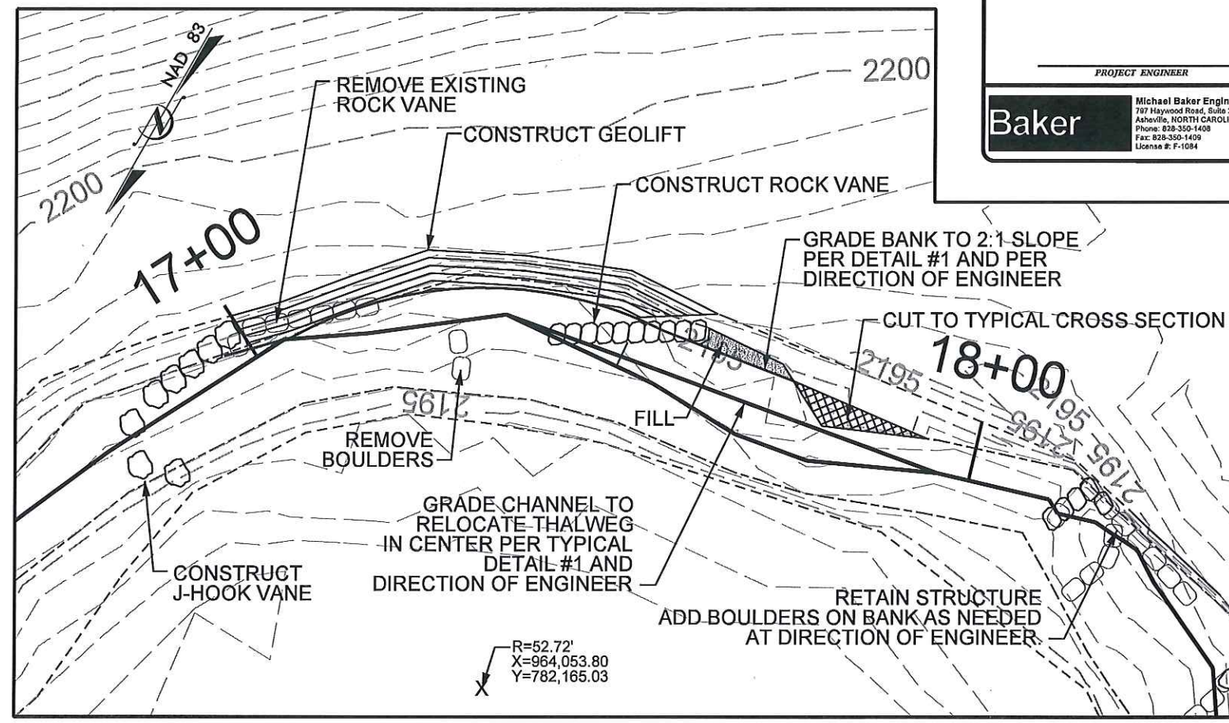
GRAPHIC SCALE
10 5 0 10 20
PLANS

SITE E

15+00 to 16+00

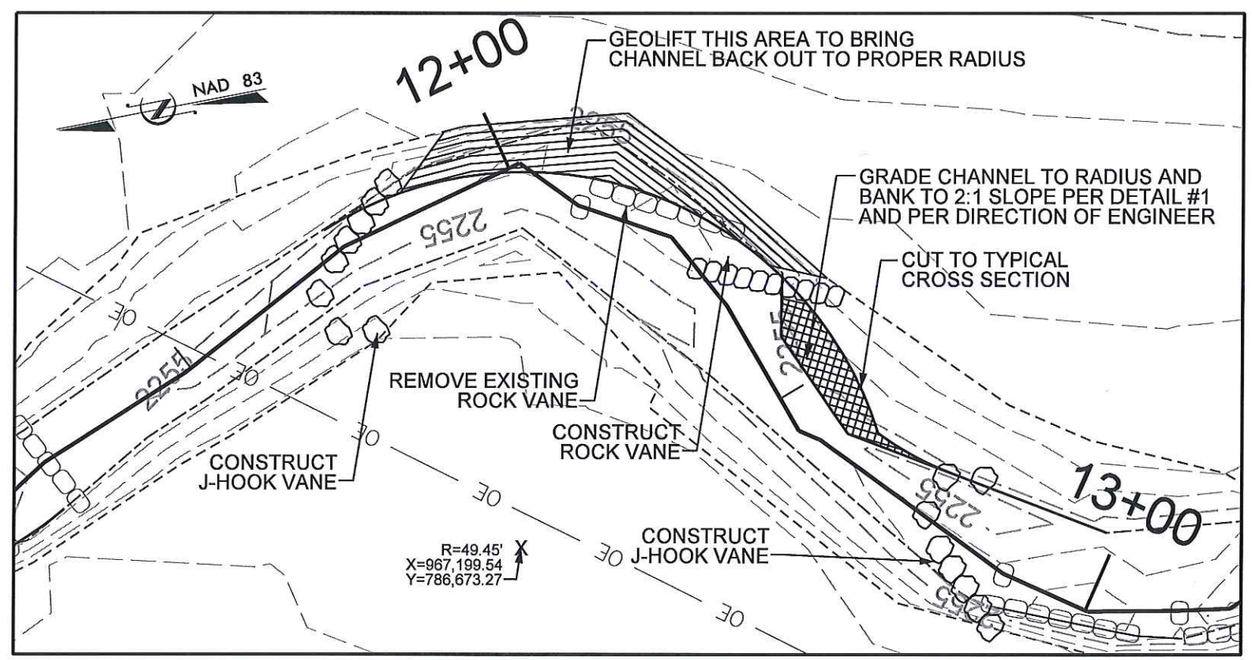


17+00 to 18+00



SITE I

11+75 to 12+75



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11.18.2013

REVISIONS

8/17/99

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STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-2518WM	EC-1	

STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

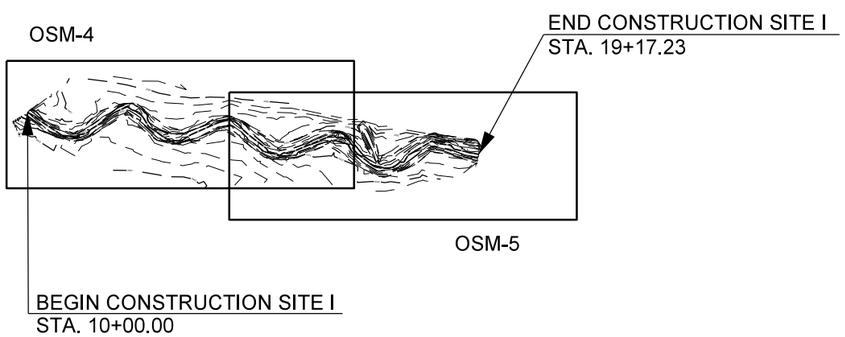
PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

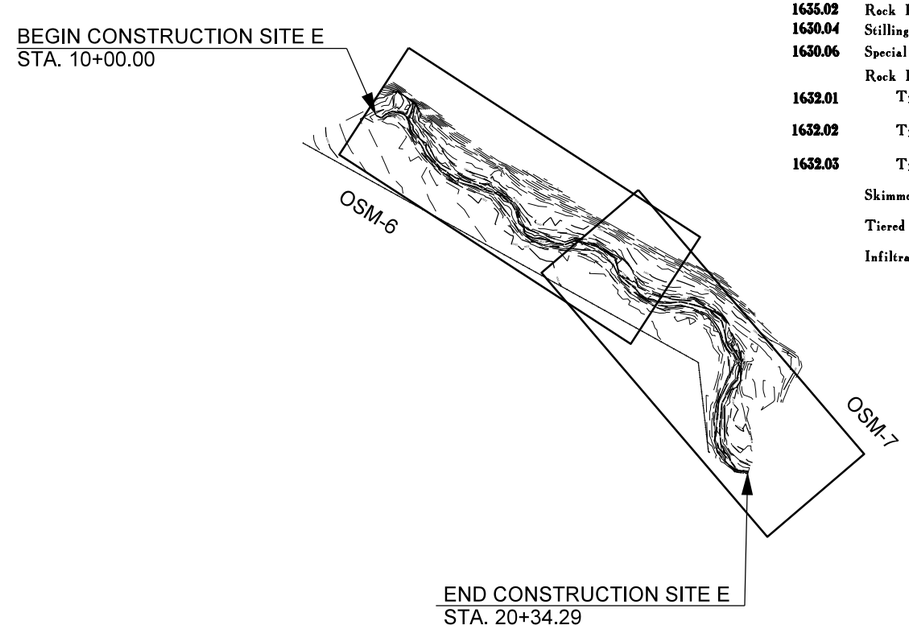
MADISON COUNTY

LOCATION: US HIGHWAY 19

TYPE OF WORK: EVALUATE SITE CONDITIONS AND CAUSES OF INSTABILITY, AND PREPARE REPAIR PLANS FOR SITE E & I

NAD 83





EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch	TSD
1630.05	Temporary Diversion	TD
1605.01	Temporary Silt Fence	
1606.01	Special Sediment Control Fence	
1622.01	Temporary Berms and Slope Drains	
1630.02	Silt Basin Type B	
1633.01	Temporary Rock Silt Check Type-A	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM)	
1633.02	Temporary Rock Silt Check Type-B	
	Wattle / Coir Fiber Wattle	BW / CFW
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM)	
1634.01	Temporary Rock Sediment Dam Type-A	
1634.02	Temporary Rock Sediment Dam Type-B	
1635.01	Rock Pipe Inlet Sediment Trap Type-A	
1635.02	Rock Pipe Inlet Sediment Trap Type-B	
1630.04	Stilling Basin	
1630.06	Special Stilling Basin	
	Rock Inlet Sediment Trap:	
1632.01	Type A	A
1632.02	Type B	B
1632.03	Type C	C
	Skimmer Basin	
	Tiered Skimmer Basin	
	Infiltration Basin	

TIP PROJECT: R-2518WM

GRAPHIC SCALE

0
PLANS

0
PROFILE (HORIZONTAL)

0
PROFILE (VERTICAL)

ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY.

Prepared in the Office of:

ROADSIDE ENVIRONMENTAL UNIT

1 South Wilmington St.
Raleigh, NC 27611

2012 STANDARD SPECIFICATIONS

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"– Roadway Design Unit – N. C. Department of Transportation – Raleigh, N. C., dated January 2012 and the latest revison thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

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PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	EC-2
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

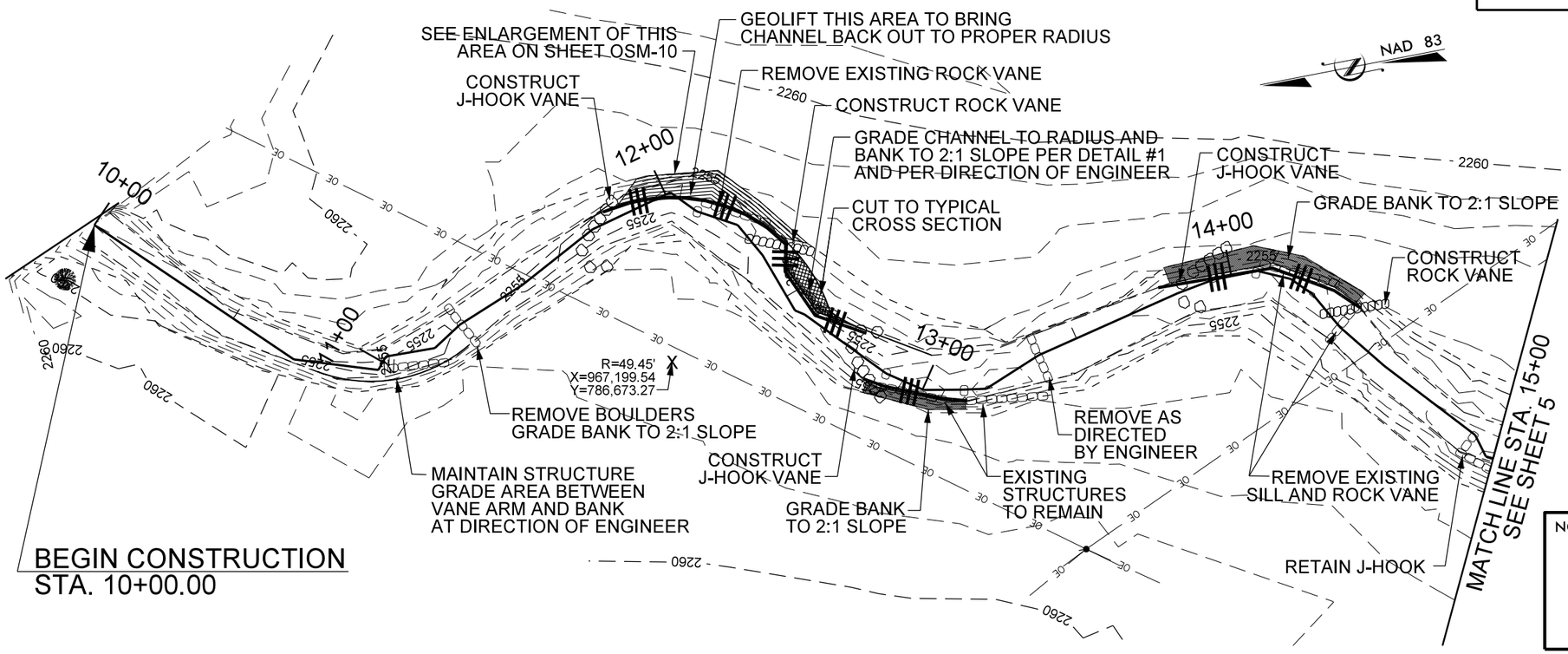
SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	EC-3/OSM-4

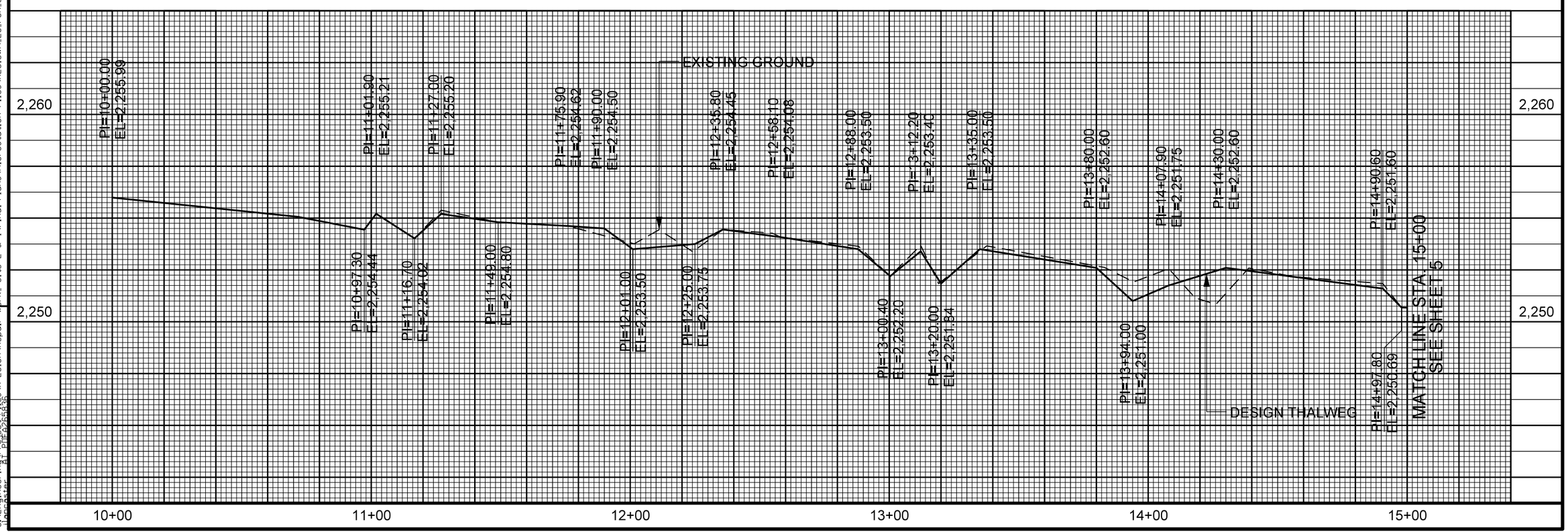
GRAPHIC SCALE
20 10 0 20 40
PLANS

SITE I



NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.



REVISIONS

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SITE I

PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	EC-4/OSM-5

GRAPHIC SCALE
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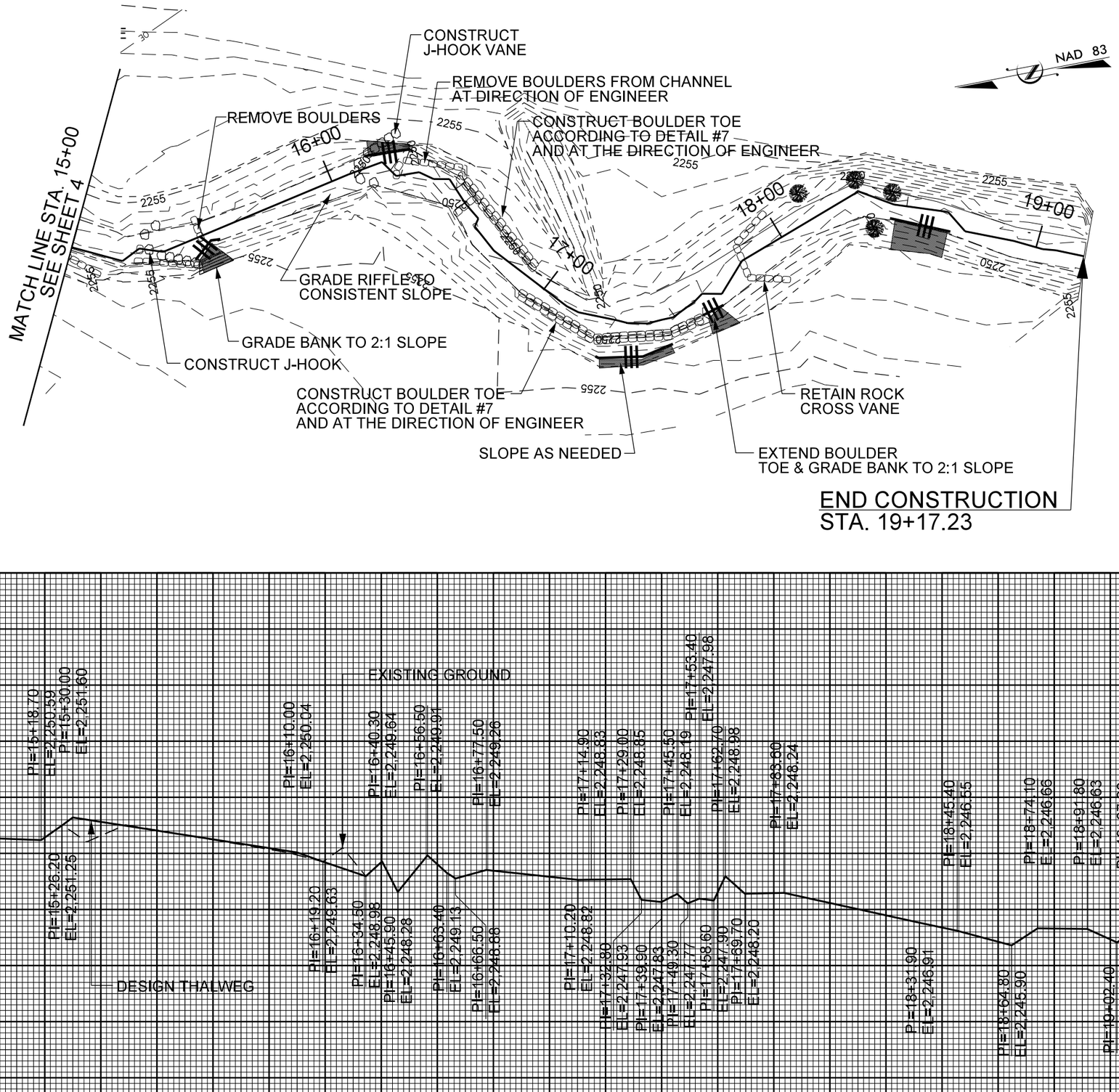
PLANS



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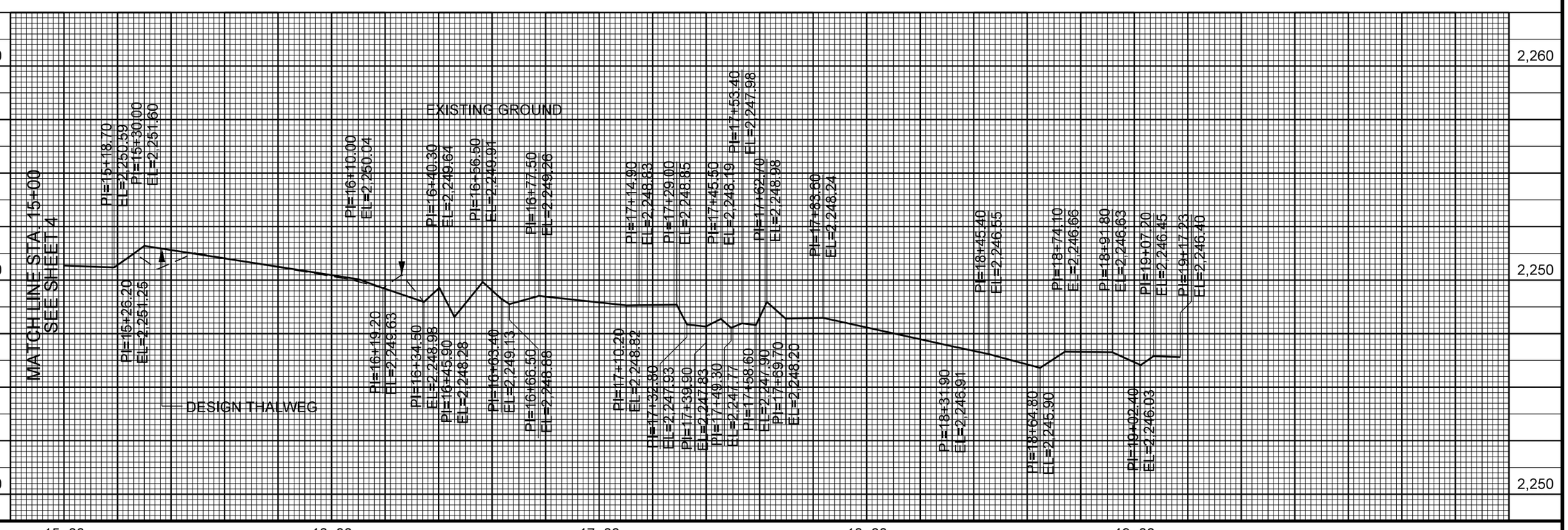
ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.



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SITE E

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

GRAPHIC SCALE
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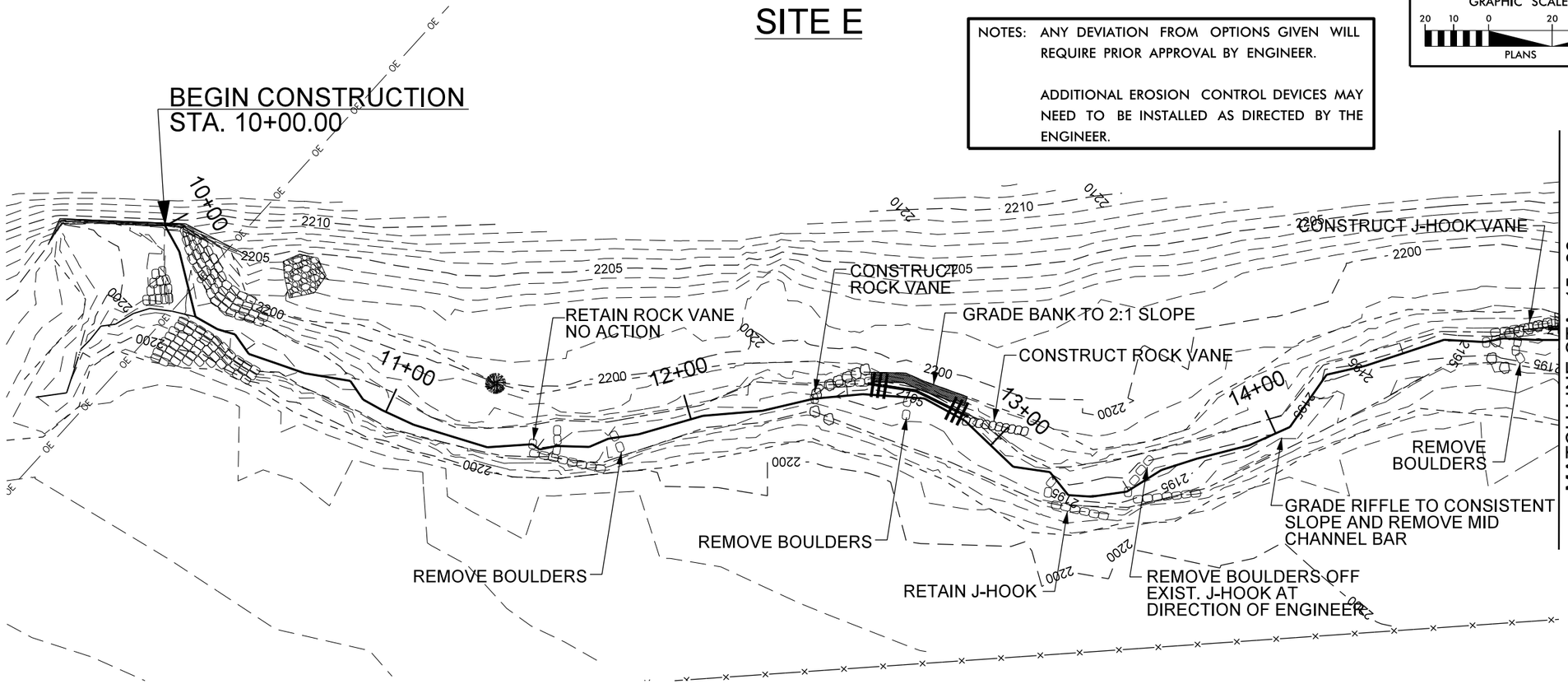
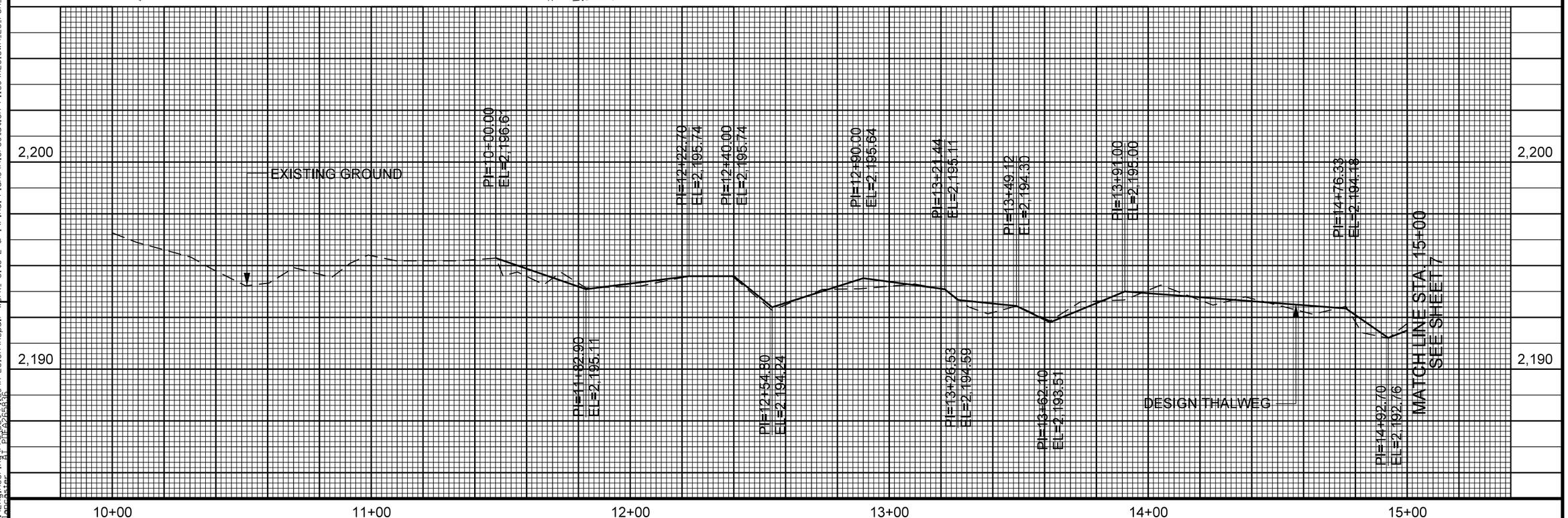
PLANS

PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	EC-5/OSM-6





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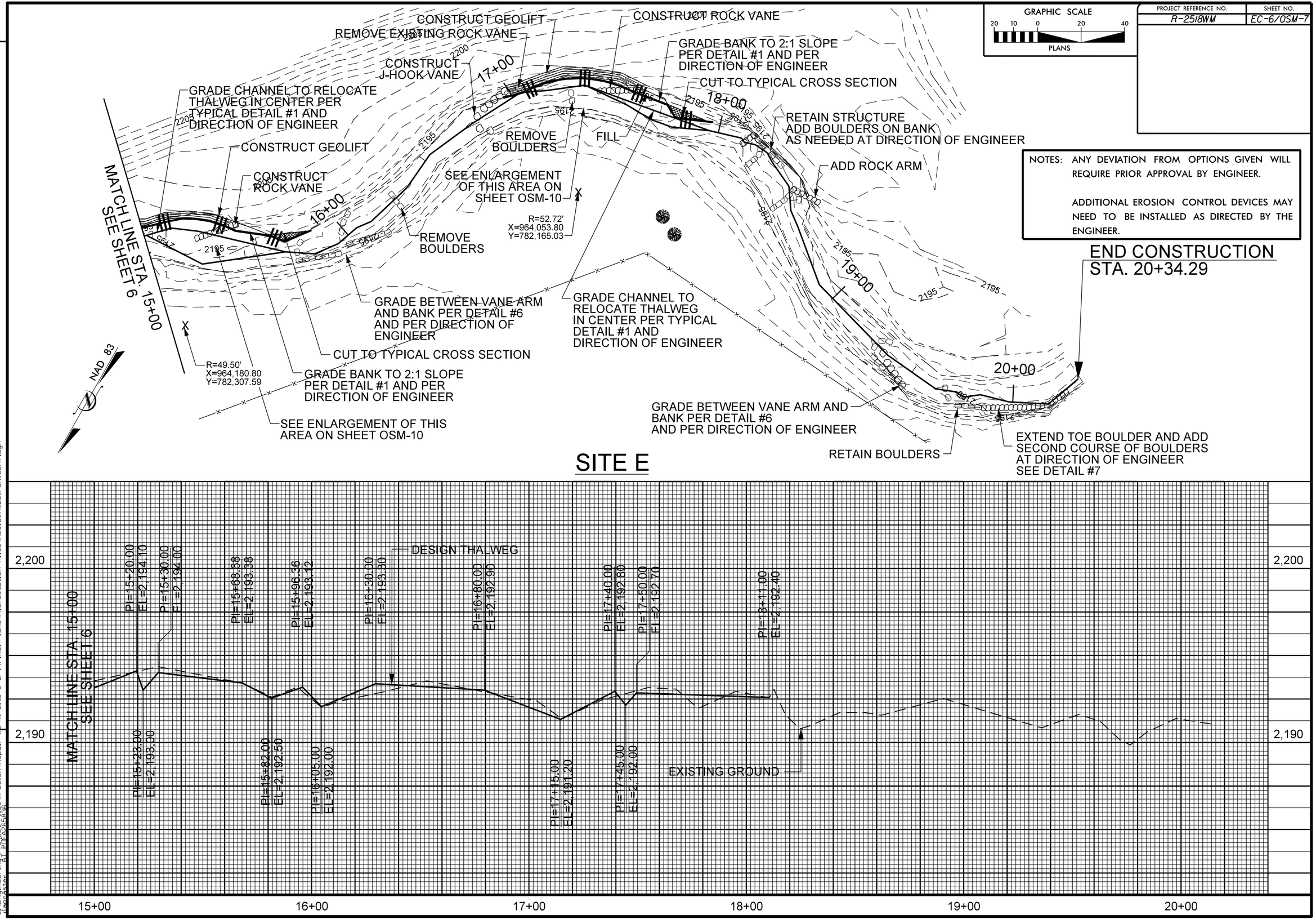

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ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

REVISIONS

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PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	EC-7/OSM-8

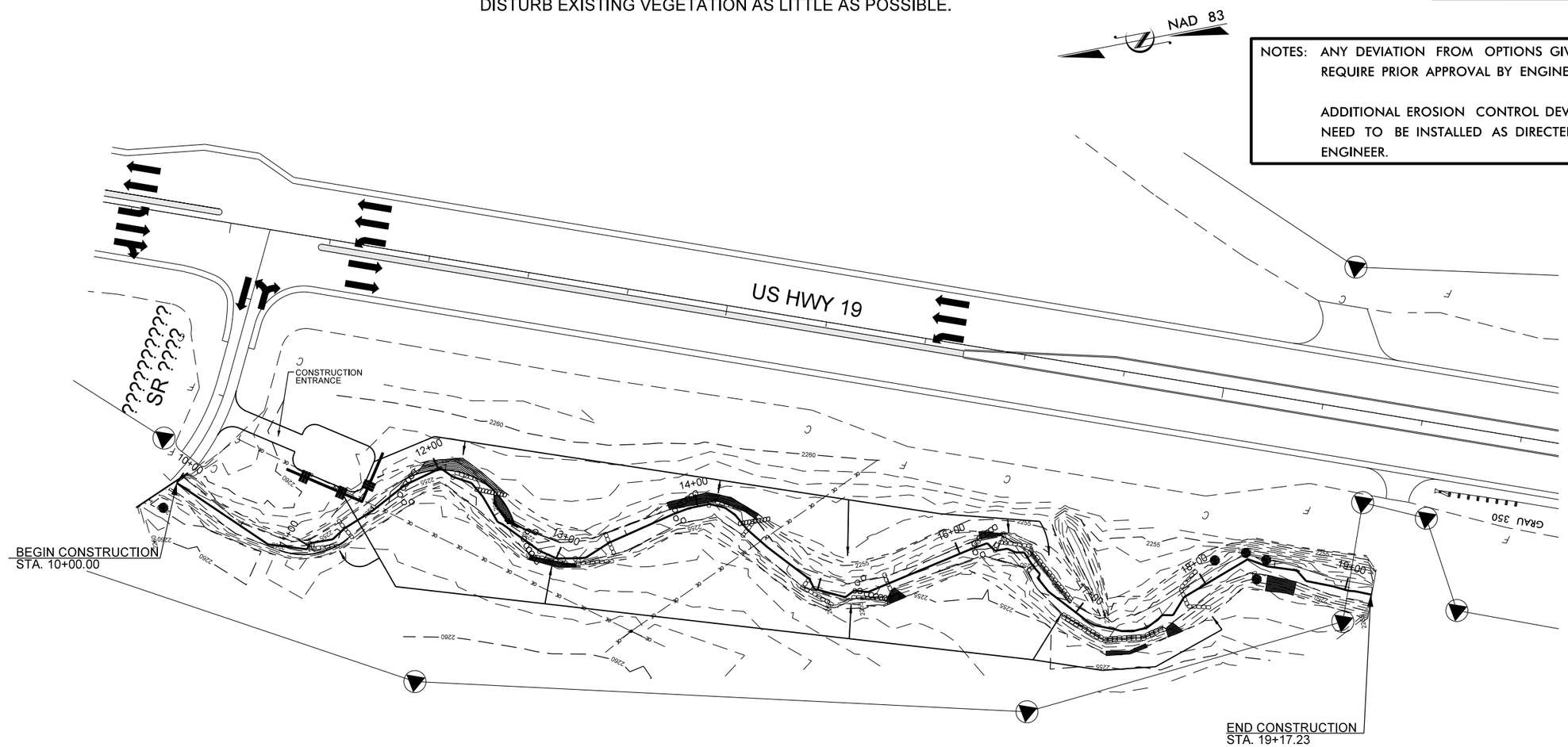
GRAPHIC SCALE
40 20 0 40 80
PLANS

SITE I

ACCESS PLAN FOR MOVING TO AREAS ALONG CHANNEL NEEDING REPAIRS. MOVEMENT OVER THE DESCRIBED PATH SHOULD BE KEPT TO A MINIMUM IN ORDER TO DISTURB EXISTING VEGETATION AS LITTLE AS POSSIBLE.

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.



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PROJECT REFERENCE NO.	SHEET NO.
R-2518WM	EC-8/OSM-9

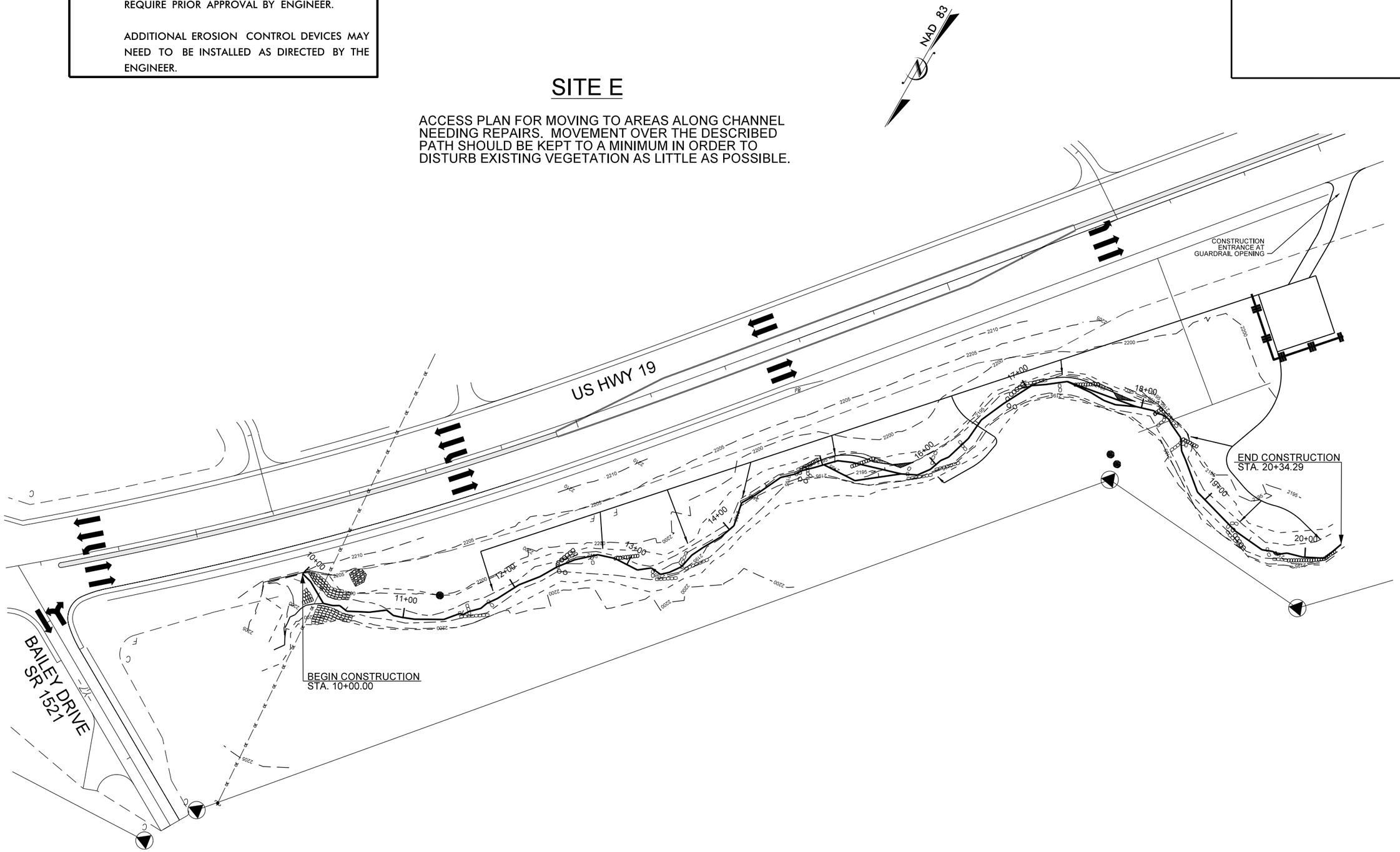
GRAPHIC SCALE
40 20 0 40 80
PLANS

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

SITE E

ACCESS PLAN FOR MOVING TO AREAS ALONG CHANNEL NEEDING REPAIRS. MOVEMENT OVER THE DESCRIBED PATH SHOULD BE KEPT TO A MINIMUM IN ORDER TO DISTURB EXISTING VEGETATION AS LITTLE AS POSSIBLE.



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