

GPS CONTROL POINTS

HVCTRL #1

I 91 EXIT 6 AZ MK
 NORTH = 249990.88
 EAST = 1650387.59
 ELEV. = 383.95

HVCTRL #2

I 91 EXIT 6
 NORTH = 247458.07
 EAST = 1650238.24
 ELEV. = 504.26

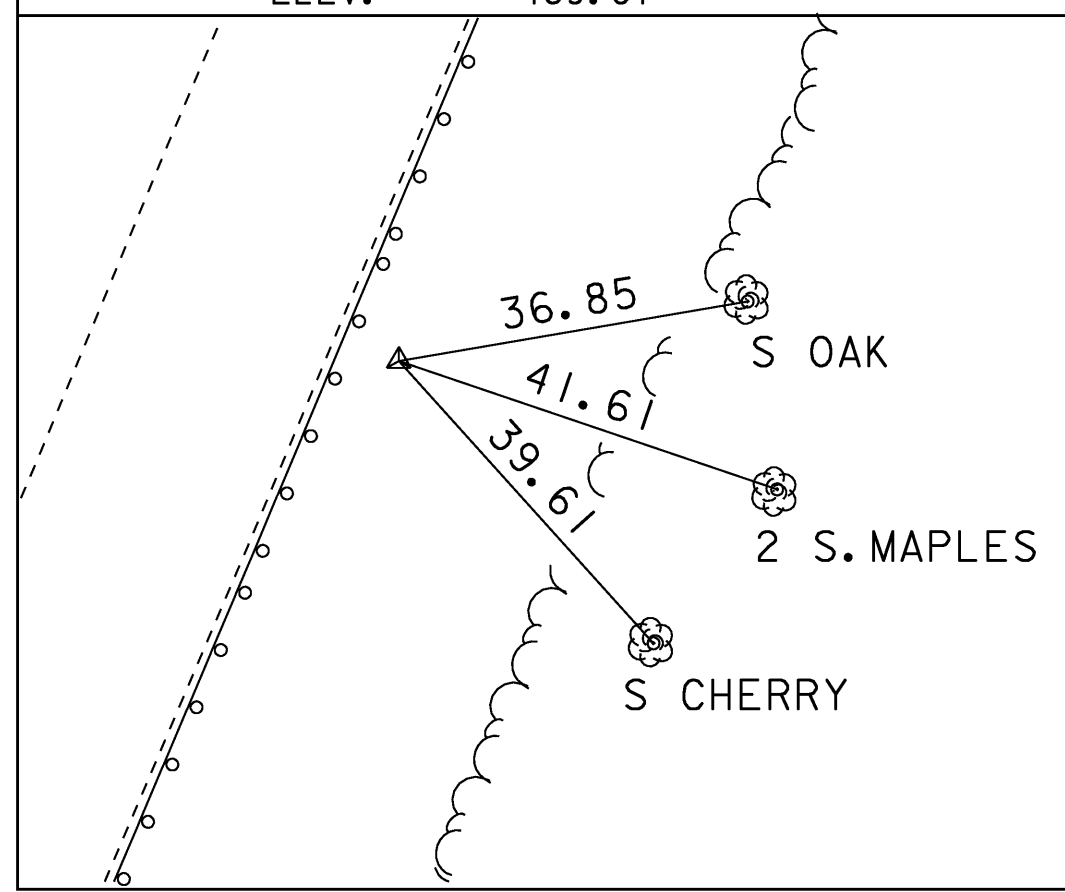
General location, Rockingham, VT. To reach from the I-91 northbound bridge over VT route 103 at exit 6, go north along I-91 for 0.5 mi to the north bound mile marker 35.60, at U-turn, and the site of the mark on the left of the median just south of the U-turn. The mark is set flush with the ground surface in the top of a 12" diameter concrete monument. It is 8.5' east of and about 0.3' lower than the east edge of pavement of the I-91 south bound lane, 36.4' west of and about 1.3' lower than the west edge of pavement of the north bound lane, 30.2' south of the centerline of the U-turn, 21.3' northwest of the center of a 24" square metal drain grate, and 1' north of a fiberglass witness post.

General location, Rockingham, VT. The mark is located in the median at the north end of the I-91 Bridges over VT route 103 at exit 6. It is between I-91 northbound mile marker's 35.20 and 35.25. The mark is set flush with ground surface in the top of a 12" diameter concrete monument. It is 20' east of and about level with the east edge of pavement of the southbound lane, 23.3' west of and about level with the west edge of pavement of the northbound lane, 21.7' northeast corner of the concrete curb of the southbound bridge, 29.5' northwest of the northwest corner of the concrete curb of the north bound bridge, 15' south of a steel beam guard rail, and 1' north of a fiberglass witness post.

TRAVERSE TIES

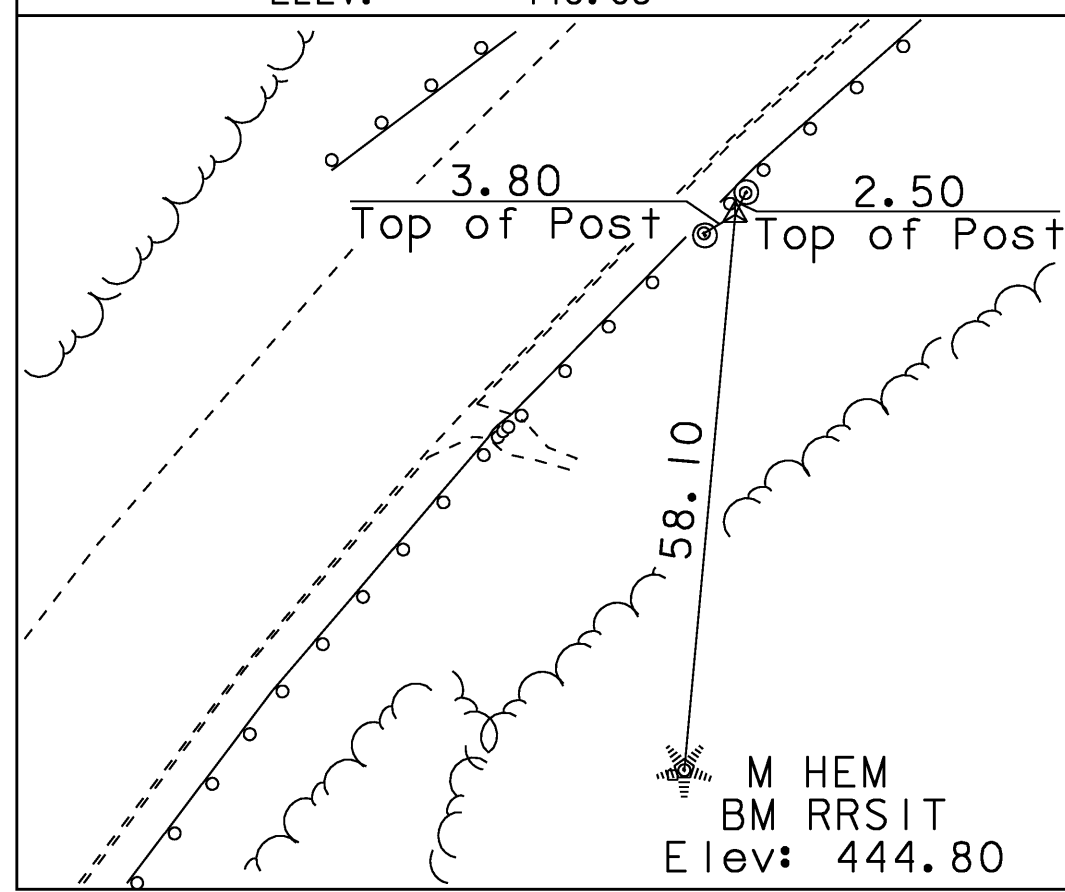
HVCTRL #8

NORTH = 243305.28
 EAST = 1650939.22
 ELEV. = 469.07



HVCTRL #9

NORTH = 243653.59
 EAST = 1651131.77
 ELEV. = 448.03



* Main Traverse Completed 12/18/07 by R. Gilman P.C. & P. Winters & D. Breer

ALIGNMENT TIES

NORTH =
 EAST =
 ELEV. =

NORTH =
 EAST =
 ELEV. =

NORTH =
 EAST =
 ELEV. =

NORTH =
 EAST =
 ELEV. =

NORTH =
 EAST =
 ELEV. =

DATUM	
VERTICAL	NAVD 88
HORIZONTAL	NAD 83(CORS96)
ADJUSTMENT	Compass

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	IM SCR(5)
FILE NAME:	07x512\survey\07x512+1.dg
PROJECT LEADER:	K. UPMAL
DESIGNED BY:	T. GUAZZONI
TIE SHEET	
PLOT DATE:	21-AUG-2008
DRAWN BY:	R. Bullock
CHECKED BY:	
SHEET	2 OF 17

QUANTITY SHEET 1

SUMMARY OF ESTIMATED QUANTITIES										TOTALS		DESCRIPTIONS			DETAILED SUMMARY OF QUANTITIES			
							ROADWAY	EROSION CONTROL	BRIDGE	GRAND TOTAL	FINAL	UNIT	ITEMS	ITEM NUMBER	ROUND	QUANTITIES	UNIT	ITEMS
							1			1		LS	CLEARING AND GRUBBING, INCLUDING INDIVIDUAL TREES AND STUMPS	201.10	EST.			
							32			32		CY	UNCLASSIFIED CHANNEL EXCAVATION	203.27	1			
							50			50		CY	EARTH BORROW	203.30	2			
									104	104		CY	STRUCTURE EXCAVATION	204.25	2			
									72	72		CY	GRANULAR BACKFILL FOR STRUCTURES	204.30	1			
									29	29		CY	CONCRETE, HIGH PERFORMANCE CLASS B	501.34	1			
									3130	3130		LB	REINFORCING STEEL	507.15	52			
									15	15		GAL	WATER REPELLENT, SILANE	514.10	EST.			
							4			4		CY	REMOVAL OF CONCRETE OR MASONRY	528.25	1			
							30			30		LF	8 INCH UNDERDRAIN CARRIER PIPE	605.20	EST.			
							32			32		CY	STONE FILL, TYPE II	613.12	1			
							20			20		CY	STONE FILL, TYPE IV	613.13	EST.			
							37.5			37.5		LF	REMOVE AND RESET GUARDRAIL	621.75	EST.			
							60			60		LF	TEMPORARY TRAFFIC BARRIER	621.90	EST.			
							60			60		LF	REMOVE AND RESET TEMPORARY TRAFFIC BARRIER	621.95	EST.			
							40			40		HR	UNIFORMED TRAFFIC OFFICERS	630.10	EST.			
							1			1		LS	MOBILIZATION/DEMOBILIZATION	635.11	EST.			
							1			1		LS	TRAFFIC CONTROL	641.10	EST.			
							48			48		SY	GEOTEXTILE UNDER STONE FILL	649.31	1			
								28		28		SY	GEOTEXTILE FOR SILT FENCE	649.51	1			
							1			1		LB	SEED	651.15	1			
							5			5		LB	FERTILIZER	651.18	1			
							0.5			0.5		TON	AGRICULTURAL LIMESTONE	651.20	EST.			
							0.5			0.5		TON	HAYMULCH	651.25	EST.			
							3			3		CY	TOPSOIL	651.35	EST.			
								1		1		LS	EPSC PLAN	652.10	EST.			
								8		8		HR	MONITORING EPSC PLAN	652.20	EST.			
								1		1		LU	MAINTENANCE OF EPSC PLAN (N.A.B.I.)	652.30	EST.			
								532		532		LF	PROJECT DEMARCATION FENCE	653.55	5			
							25			25		CY	SPECIAL PROVISION (CONTROLLED DENSITY/FLOWABLE) FILL	900.608	EST.			
									142	142	136	LF	SPECIAL PROVISION (CURED-IN-PLACE PIPE LINER) (88')	900.640	1			
							180			180		LF	SPECIAL PROVISION (TEST BORINGS)	900.640	10			
									1	1		LS	SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)	900.645	EST.			
									1	1		LS	SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)	900.645	EST.			

PROJECT NAME: RUGGINSHAM
 PROJECT NUMBER: 100 0000 (S)
 PROJECT MANAGER: B. SPYRAL
 DESIGNED BY: T. GUAZZONI
 CHECKED BY: B. KIPP
 QUANTITY SHEET BY: [Blank]
 SHEET 7 OF 17

① APPROXIMATE LOCATION OF "TEMPORARY RELOCATION OF STREAM" FLOW SHALL BE BYPASSED VIA PUMPING OR APPROVED ALTERNATIVE. TEMPORARY STONE CHECK DAMS MAY BE WARRANTED AT THE BASE OF THE INLET IN ORDER TO ASSURE ADEQUATE WATER VOLUME FOR BYPASS PUMPING. PAYMENT WILL BE MADE UNDER CONTRACT ITEM 900.645 "SPECIAL PROVISION (TEMPORARY RELOCATION OF STREAM)"

② STONE FILL TYPE III SHALL BE PLACED AS DIRECTED BY THE RESIDENT ENGINEER

③ EXISTING 66" SPAN X 72" RISE 150' CGMP

④ THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING TEMPORARY ACCESS TO THE CULVERT INLET. ALL RESULTING DISTURBED EARTH SHALL BE STABILIZED AND RESTORED UPON COMPLETION OF CONSTRUCTION. PAYMENT SHALL BE MADE UNDER CONTRACT ITEM 900.645 "SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)"

⑤ ~~142'~~ ^{136'} CIPP LINER
2" MAX. LINER THICKNESS W/ REINFORCED CONCRETE FULL BEVELED HEADWALL AND WINGWALLS AT INLET, PAYMENT WILL BE MADE UNDER CONTRACT ITEM 900.640 "SPECIAL PROVISION (CURED-IN-PLACE PIPE LINER) (66")"

⑥ SYMBOL REPRESENTS APPROXIMATE LOCATIONS OF TEST BORINGS TO BE PERFORMED BY THE CONTRACTOR FOLLOWING INSTALLATION OF LINER. BORINGS SHALL BE USED TO LOCATE SUBSURFACE VOIDS. IF NECESSARY, CORRESPONDING HOLES SHALL BE SLEEVED TO ALLOW FOR THE PLACEMENT OF CONTROLLED DENSITY FILL. PAYMENT WILL BE MADE UNDER CONTRACT ITEM 900.640 "SPECIAL PROVISION (TEST BORINGS)"

⑦ THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING TEMPORARY ACCESS TO THE EASTERN EMBANKMENT AND CULVERT OUTLET. ALL RESULTING DISTURBED EARTH SHALL BE STABILIZED AND RESTORED UPON COMPLETION OF CONSTRUCTION. PAYMENT SHALL BE MADE UNDER CONTRACT ITEM 900.645 "SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)"

⑧ EXISTING 18" CGMP TO REMAIN UNDISTURBED

⑨ EXISTING DEPRESSIONS LOCATED ON THE WESTERN AND EASTERN EMBANKMENTS SHALL BE PROPERLY BACK FILLED USING EARTH BORROW, COMPACTED, SEEDED AND MULCHED

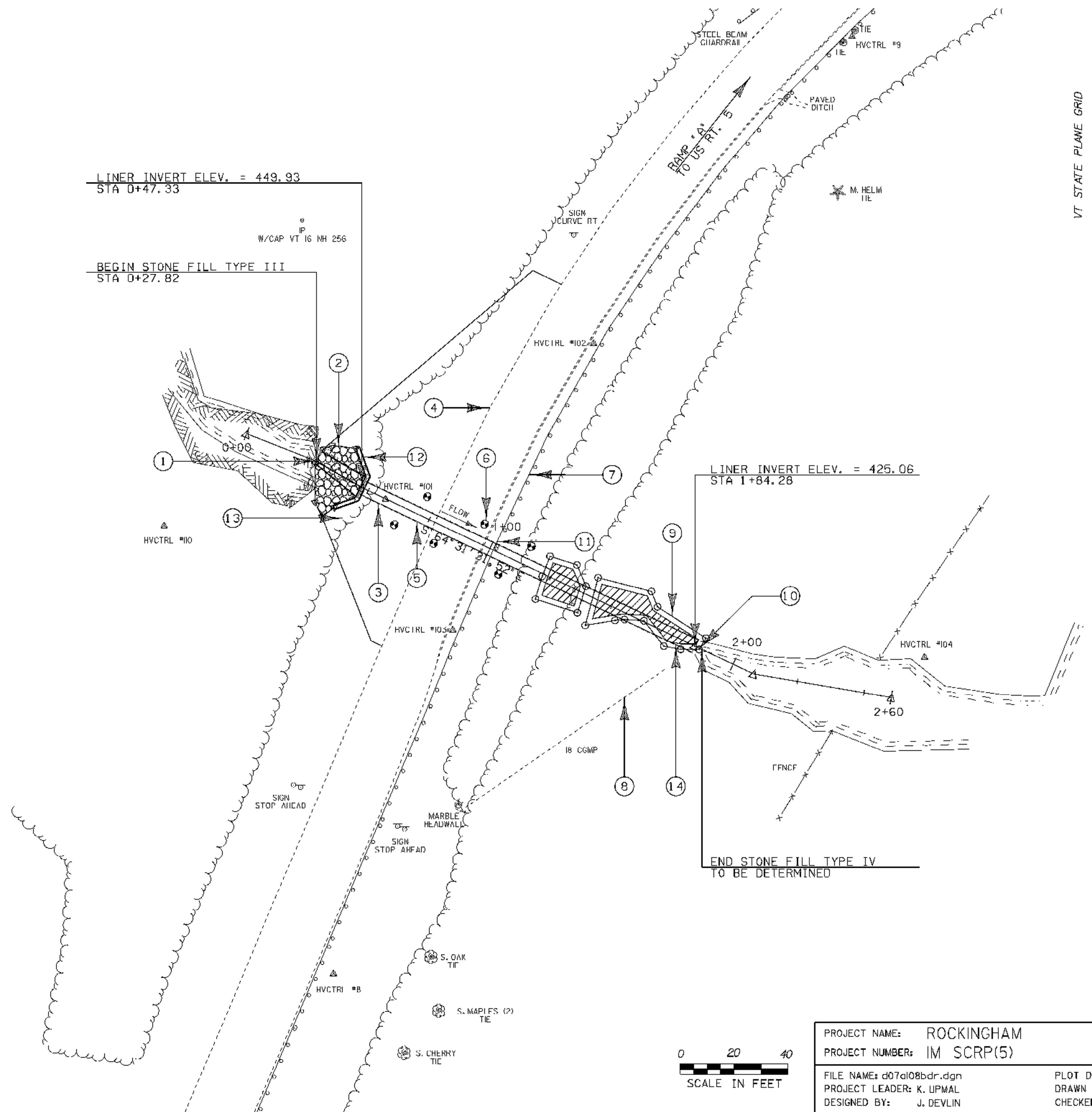
⑩ STONE FILL TYPE IV TO BE PLACED AS DIRECTED BY THE RESIDENT ENGINEER

⑪ REMOVE AND RESET GUARDRAIL

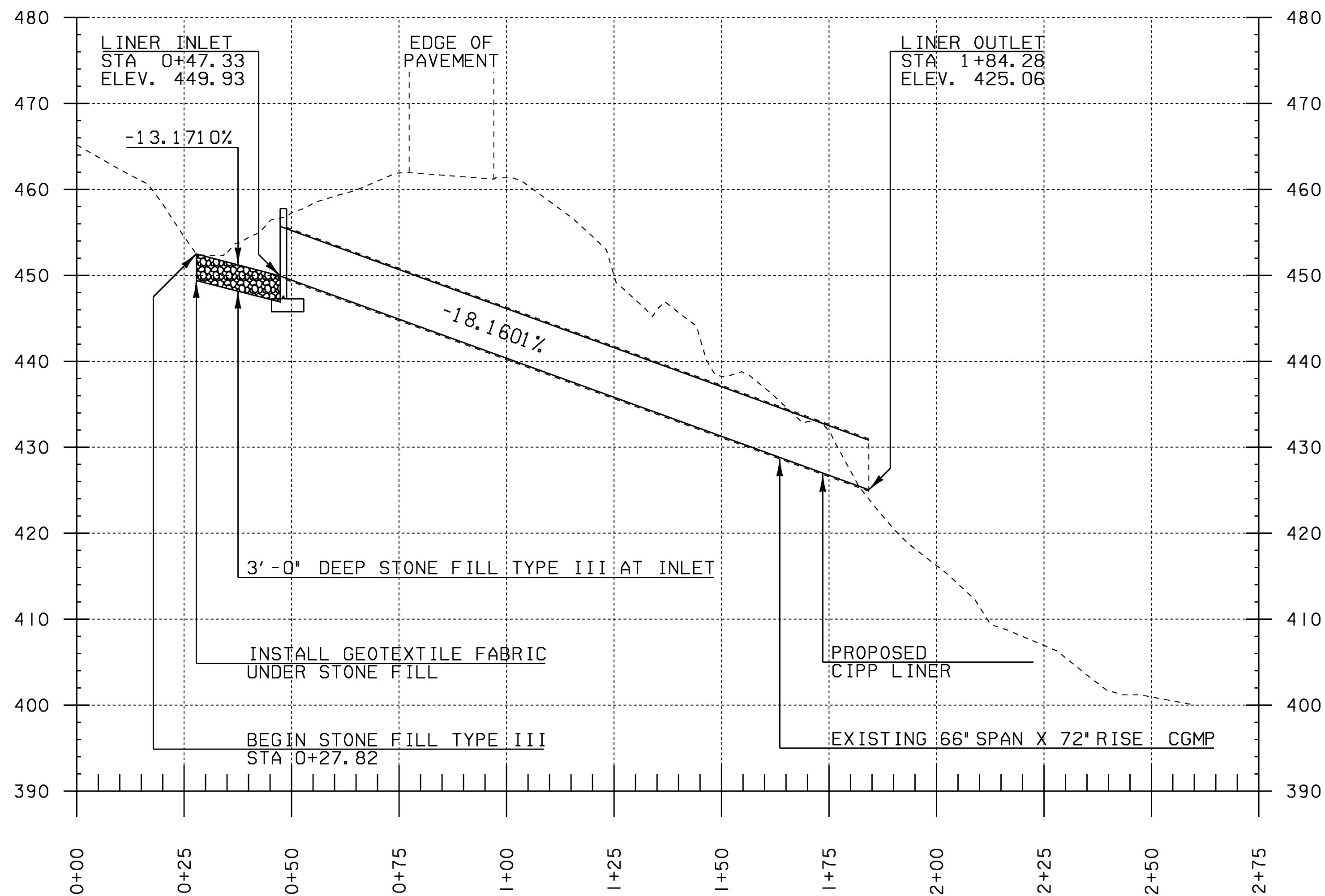
⑫ REMOVE EXISTING HEADWALL

⑬ NEW 6 INCH X 30 FT UNDERDRAIN CARRIER PIPE
EXISTING UNDERDRAIN SHALL BE SPLICED AND PROPERLY CONNECTED WITH NEW 6-INCH UNDERDRAIN CARRIER PIPE. UNDERDRAIN SHALL BE DAYLIGHTED AS DIRECTED BY THE RESIDENT ENGINEER.

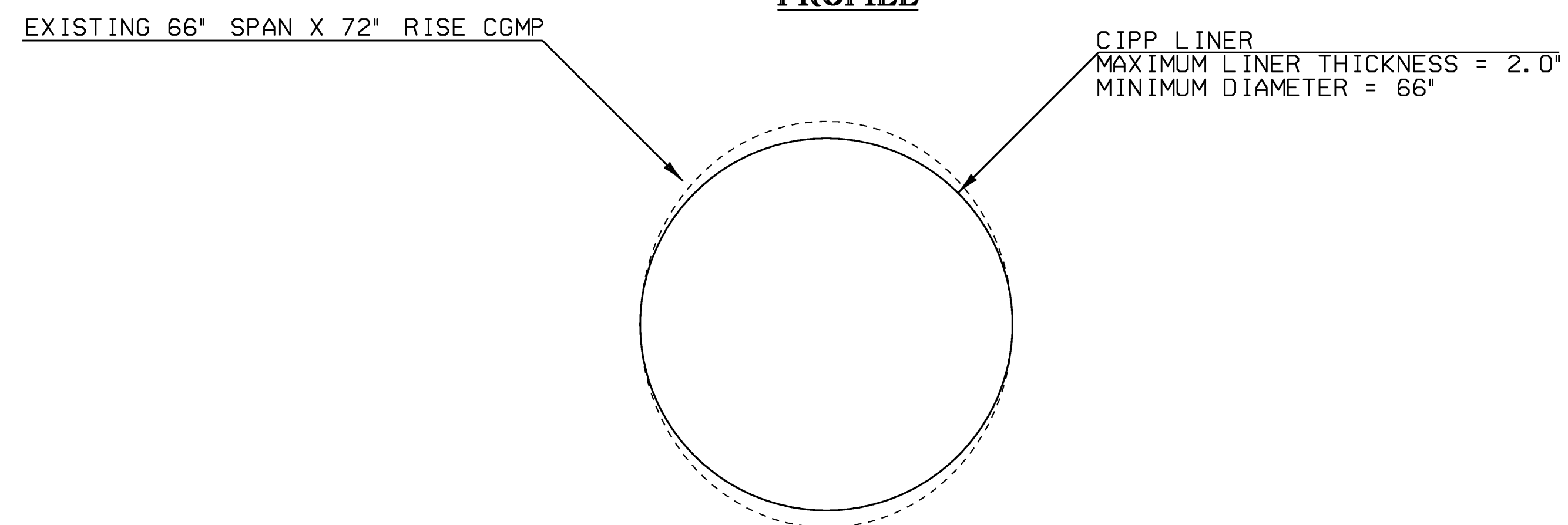
⑭ REMOVE EXISTING MITERED OUTLET
PAYMENT OF THE REMOVAL SHALL BE MADE UNDER CONTRACT ITEM 900.640 "SPECIAL PROVISION (CURED-IN-PLACE PIPE LINER) (66")"



PROJECT NAME:	ROCKINGHAM	FILE NAME:	d07al08bdr.dgn	PLOT DATE:	30-JUL-2008
PROJECT NUMBER:	IM SCR(5)	PROJECT LEADER:	K. UPMAL	DRAWN BY:	J. DEVLIN
		DESIGNED BY:	J. DEVLIN	CHECKED BY:	B. KIPP
		LAYOUT PLAN SHEET		SHEET 4	OF 17



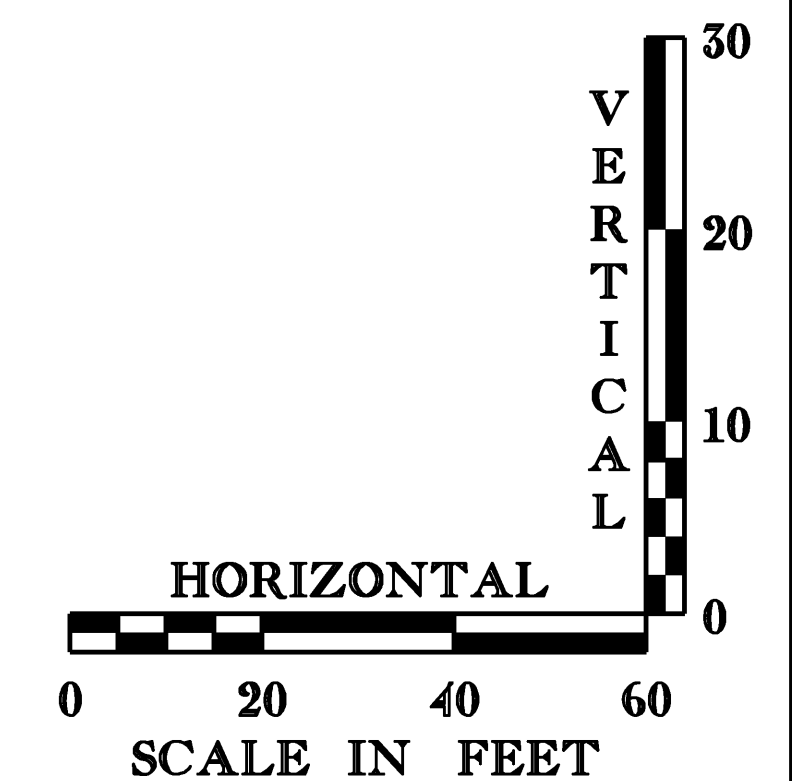
**MM 0351
CULVERT CENTERLINE
PROFILE**



**MM 0351
CULVERT LINING DETAIL
NOT TO SCALE**

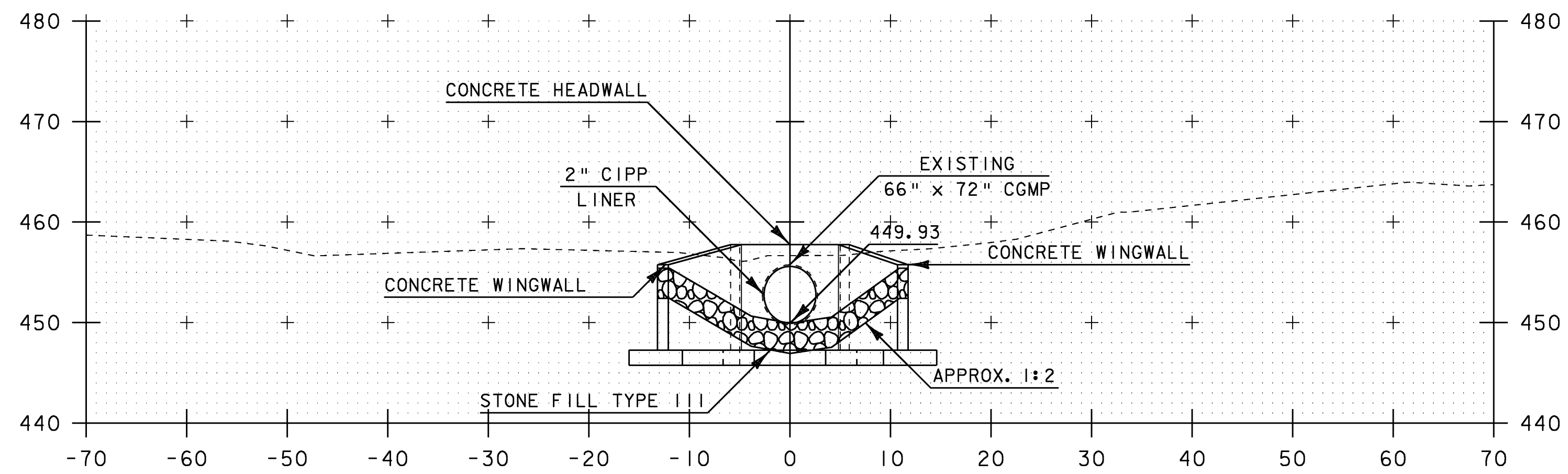
PROJECT NOTES

- ① THE CONTRACT ITEM 900.645 "SPECIAL PROVISION (CURED-IN-PLACE PIPE LINER) (66\")" IS INTENDED TO BE USED FOR THE INSTALLATION OF A RESIN-IMPREGNATED FLEXIBLE TUBE, WHICH SHALL BE TIGHTLY FORMED TO THE ORIGINAL CONDUIT. THE RESIN IS TO BE CURED USING EITHER HOT WATER UNDER HYDROSTATIC PRESSURE OR STEAM PRESSURE WITHIN THE TUBE. THE CURED-IN-PLACE PIPE (CIPP) SHALL BE CONTINUOUS AND TIGHT FITTING.
- ② THE CONTRACTOR WILL BE RESPONSIBLE FOR PREPARATION OF THE EXISTING PIPE TO THE SATISFACTION OF THE MANUFACTURER OF THE CIPP LINER. IT IS ANTICIPATED THAT IT WILL BE NECESSARY FOR THE CONTRACTOR TO REMOVE SEDIMENT, LARGE STONES, AND/OR DEBRIS FROM INSIDE THE EXISTING CULVERT, AND TO FILL AND REPAIR LARGE HOLES IN THE EXISTING PIPE PRIOR TO INSTALLING THE CIPP LINER. ADDITIONALLY THE CONTRACTOR SHALL FILL ANY VOIDS UNDER THE PIPE FROM WITHIN THE PIPE BEFORE INSTALLING THE CIPP LINER. PAYMENT FOR THIS WORK WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM 900.608
- ③ ALL WORK DIRECTLY ASSOCIATED WITH THE REPAIR OF THE CULVERT SHALL BE DONE IN DRY CONDITIONS WITH NO STANDING OR FLOWING WATER PRESENT INSIDE THE CULVERT. REFER TO PROJECT SPECIAL PROVISIONS FOR ADDITIONAL REQUIREMENTS.
- ④ THE CONTRACTOR SHALL ESTABLISH TURF ON ANY AREAS DISTURBED AS A RESULT OF WORK ON THIS PROJECT ACCORDING TO THE RURAL SEEDING FORMULA ON SHEET 12 OR AS DIRECTED BY THE RESIDENT ENGINEER.
- ⑤ THE CONTRACTOR SHALL FILL VOIDS WITHIN THE PIPE INVERT SUBSURFACE WITH FLOWABLE FILL BEFORE THE INSTALLATION OF THE CURED-IN-PLACE PIPE LINER. PAYMENT FOR THIS WORK WILL BE INCLUDED IN THE UNIT PRICE BID FOR CONTRACT ITEM.

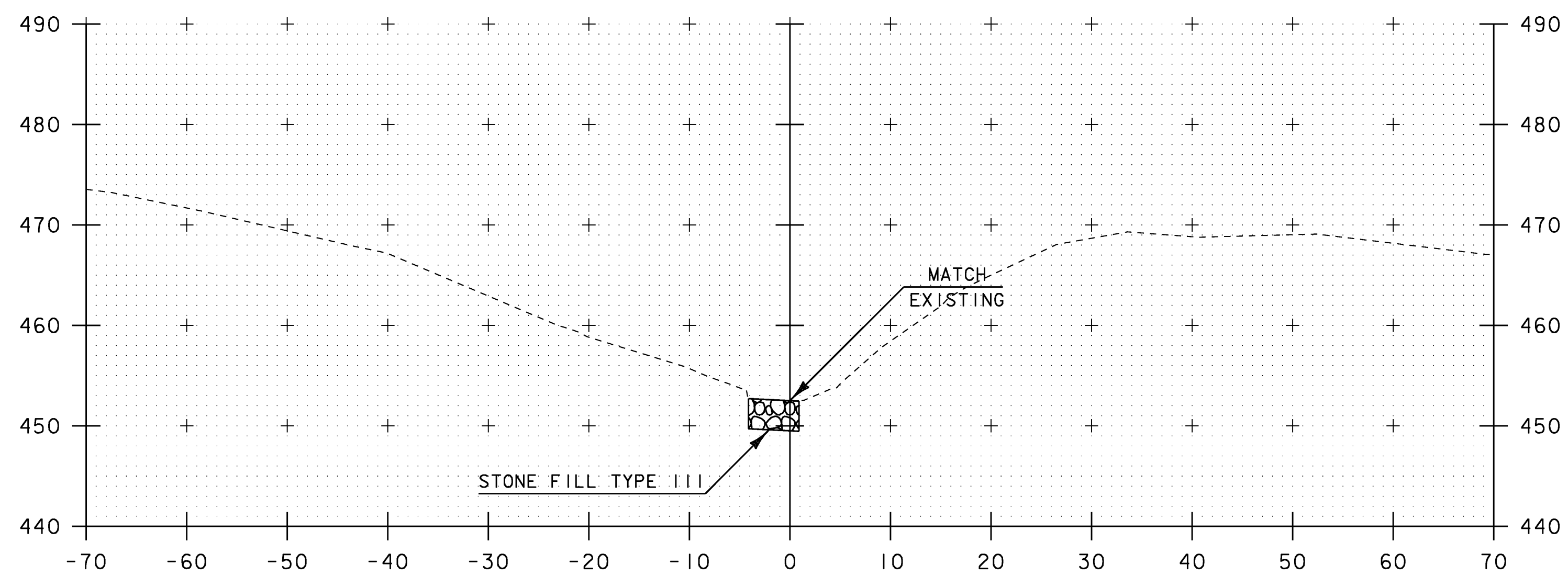


PROJECT NAME: ROCKINGHAM	
PROJECT NUMBER: IM SCR(5)	
FILE NAME: d07a108prof.dgn	PLOT DATE: 30-JUL-2008
PROJECT LEADER: K. UPMAL	DRAWN BY: J. DEVLIN
DESIGNED BY: J. DEVLIN	CHECKED BY: B. KIPP
CULVERT LINING DETAIL	SHEET 5 OF 17

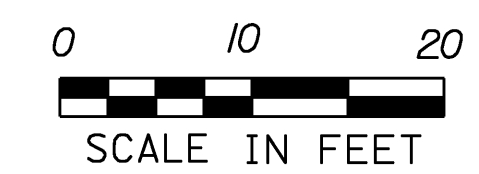
DATUM	
VERTICAL	NAVD88
HORIZONTAL	NAD83(96)



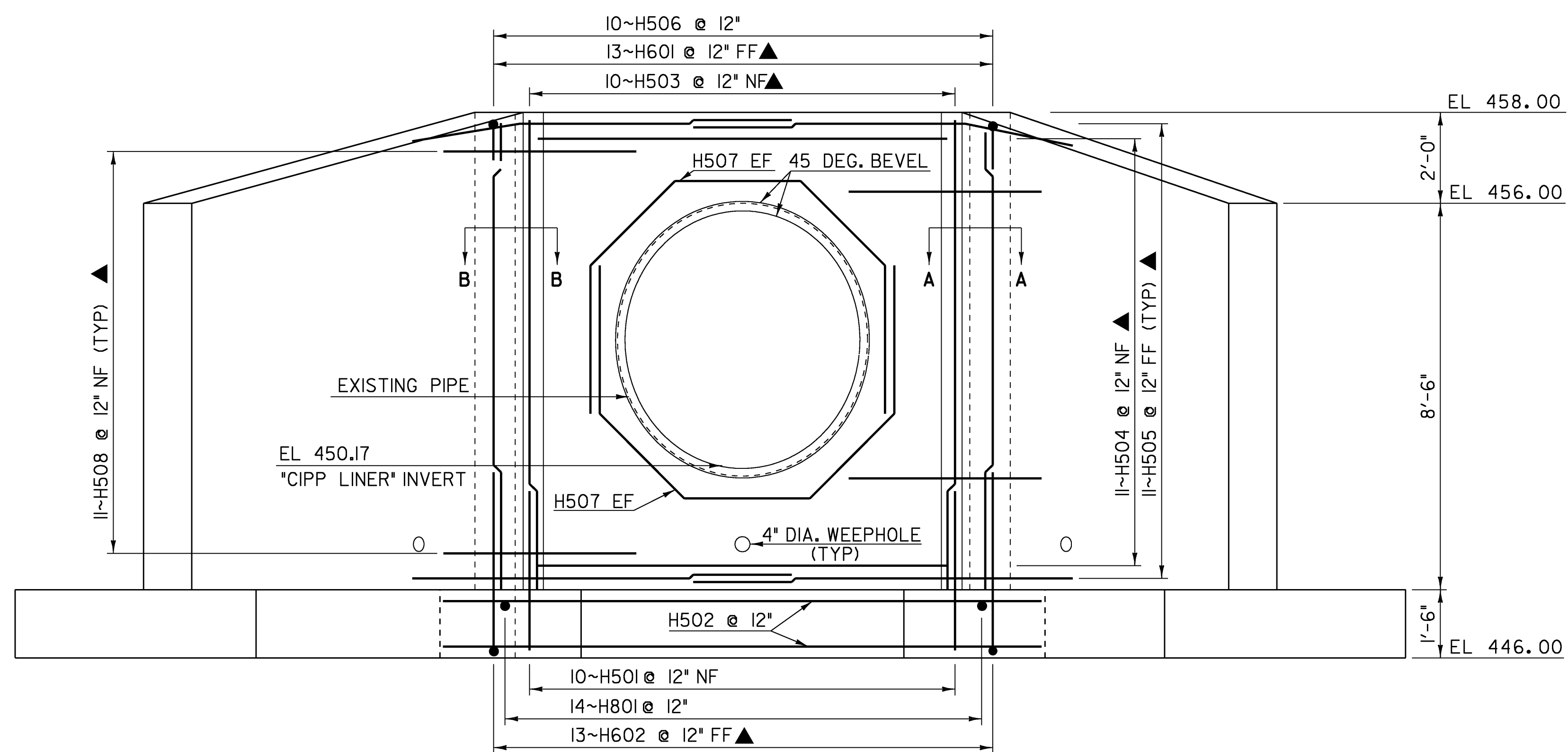
0+47.33
INLET



0+27.82
INLET

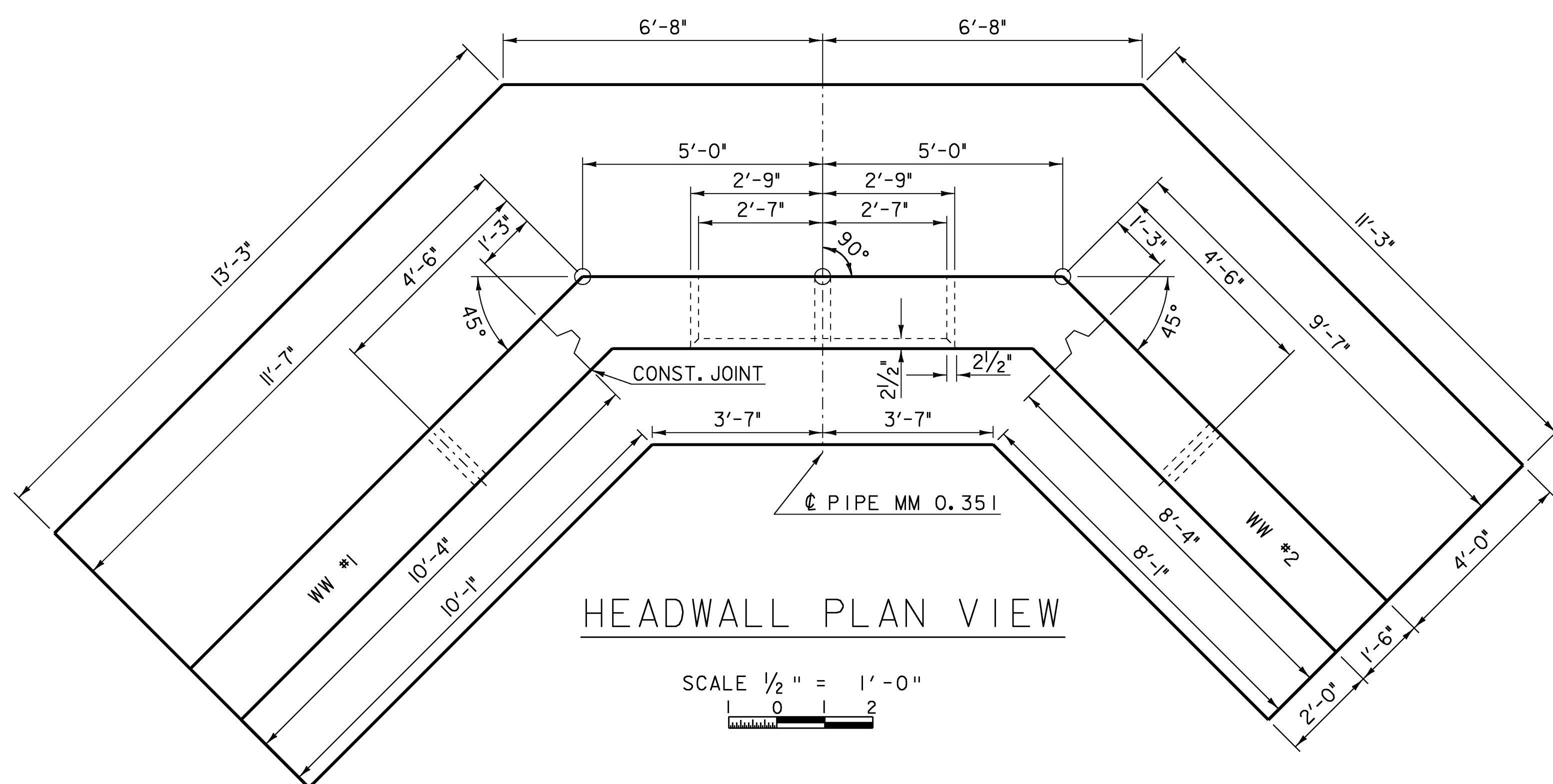


PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	IM SCR(5)
FILE NAME:	d07a108bdr.dgn
PROJECT LEADER:	K. UPMAL
DESIGNED BY:	T. GUAZZONI
CHANNEL SECTIONS	
PLOT DATE:	30-JUL-2008
DRAWN BY:	T. GUAZZONI
CHECKED BY:	B. KIPP
SHEET	6 OF 17



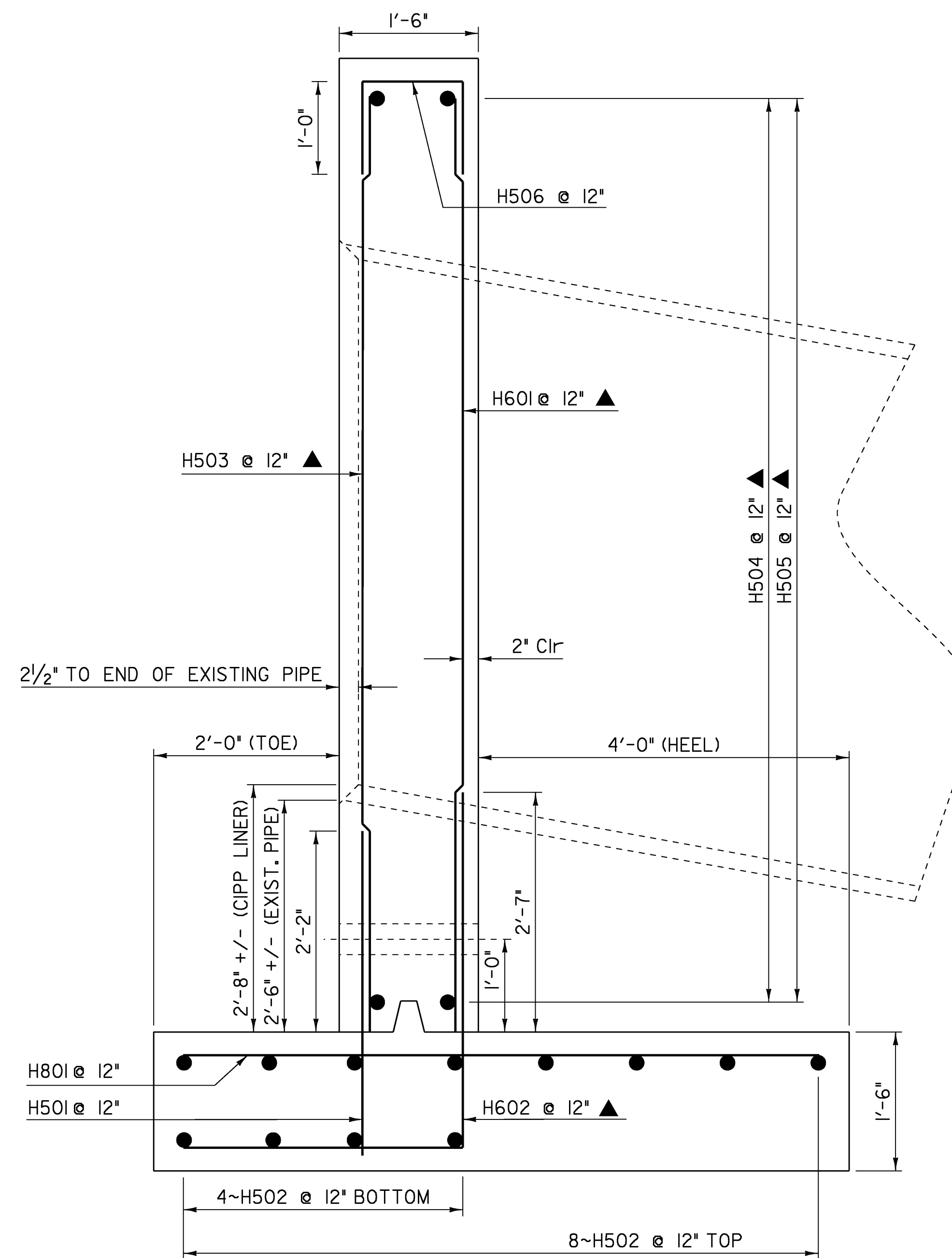
HEADWALL ELEVATION VIEW

SCALE 1/2" = 1'-0"
 0 1 2



HEADWALL PLAN VIEW

SCALE 1/2" = 1'-0"
 0 1 2



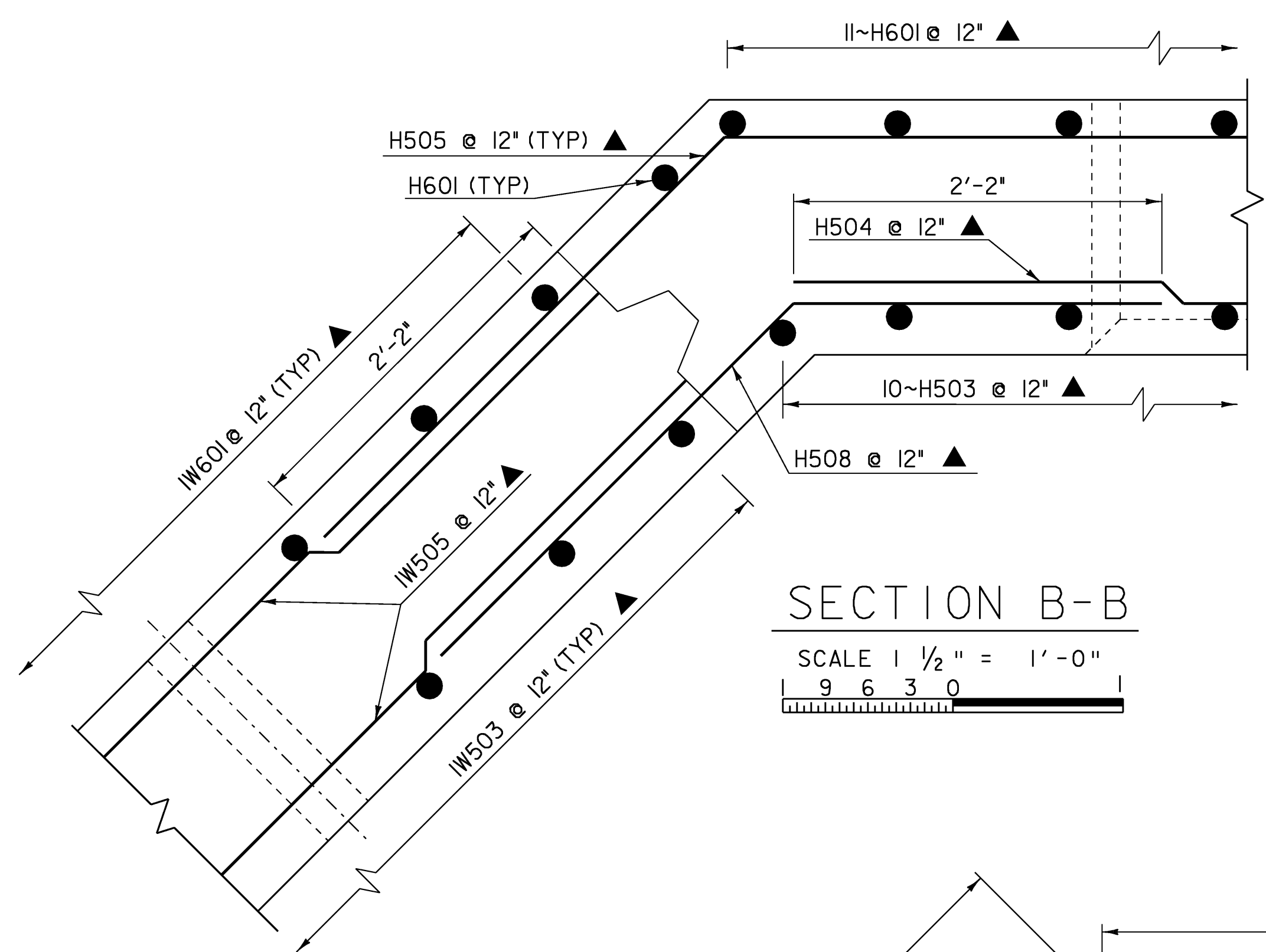
HEADWALL SECTION FOR MM 0.351

SCALE 1" = 1'-0"
 1 9 6 3 0 1 2

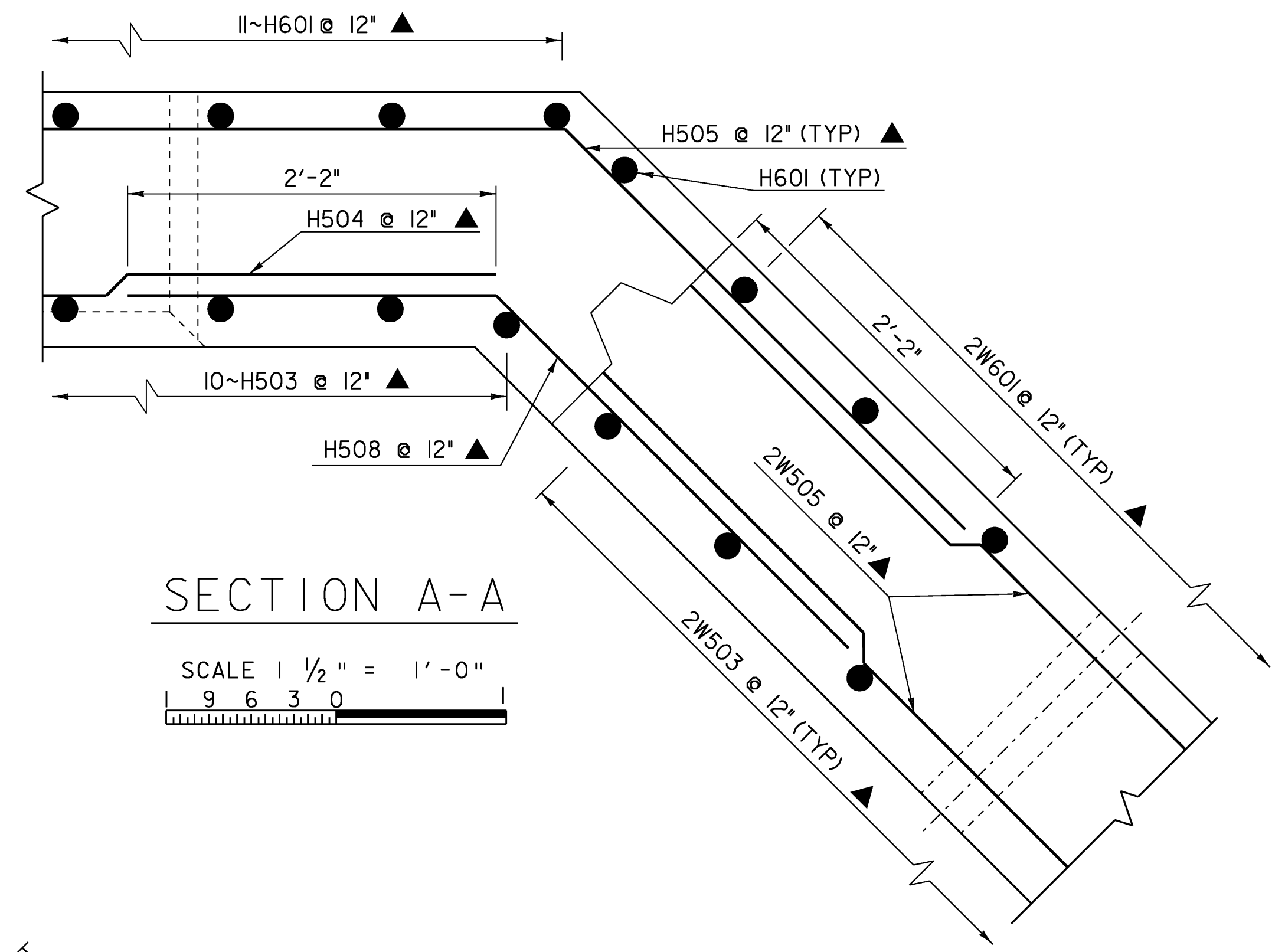
NOTE:

- NF = NEAR FACE
- FF = FAR FACE
- EF = EACH FACE
- ▲ = CUT TO FIT IN FIELD
- 3" CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS.

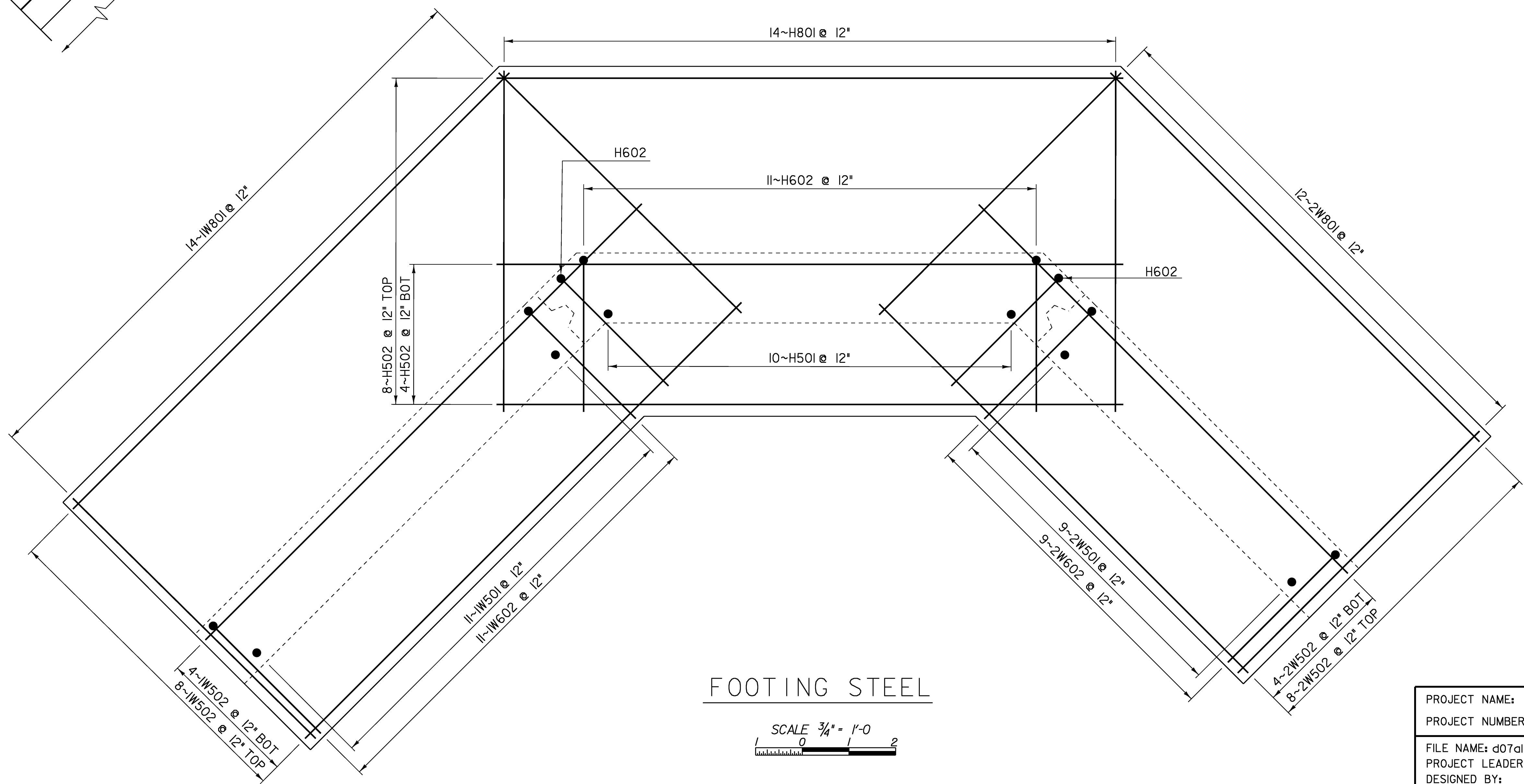
PROJECT NAME: ROCKINGHAM	PLOT DATE: 30-JUL-2008
PROJECT NUMBER: IM SCRP(5)	DRAWN BY: R. FOSTER
FILE NAME: d07al08Headwall.dgn	CHECKED BY: W. SYMONDS
PROJECT LEADER: K. UPMAL	SHEET 7 OF 17
DESIGNED BY: R. FOSTER	
HEADWALL DETAIL SHEET	



SECTION B-B
SCALE 1/2" = 1'-0"
9 6 3 0



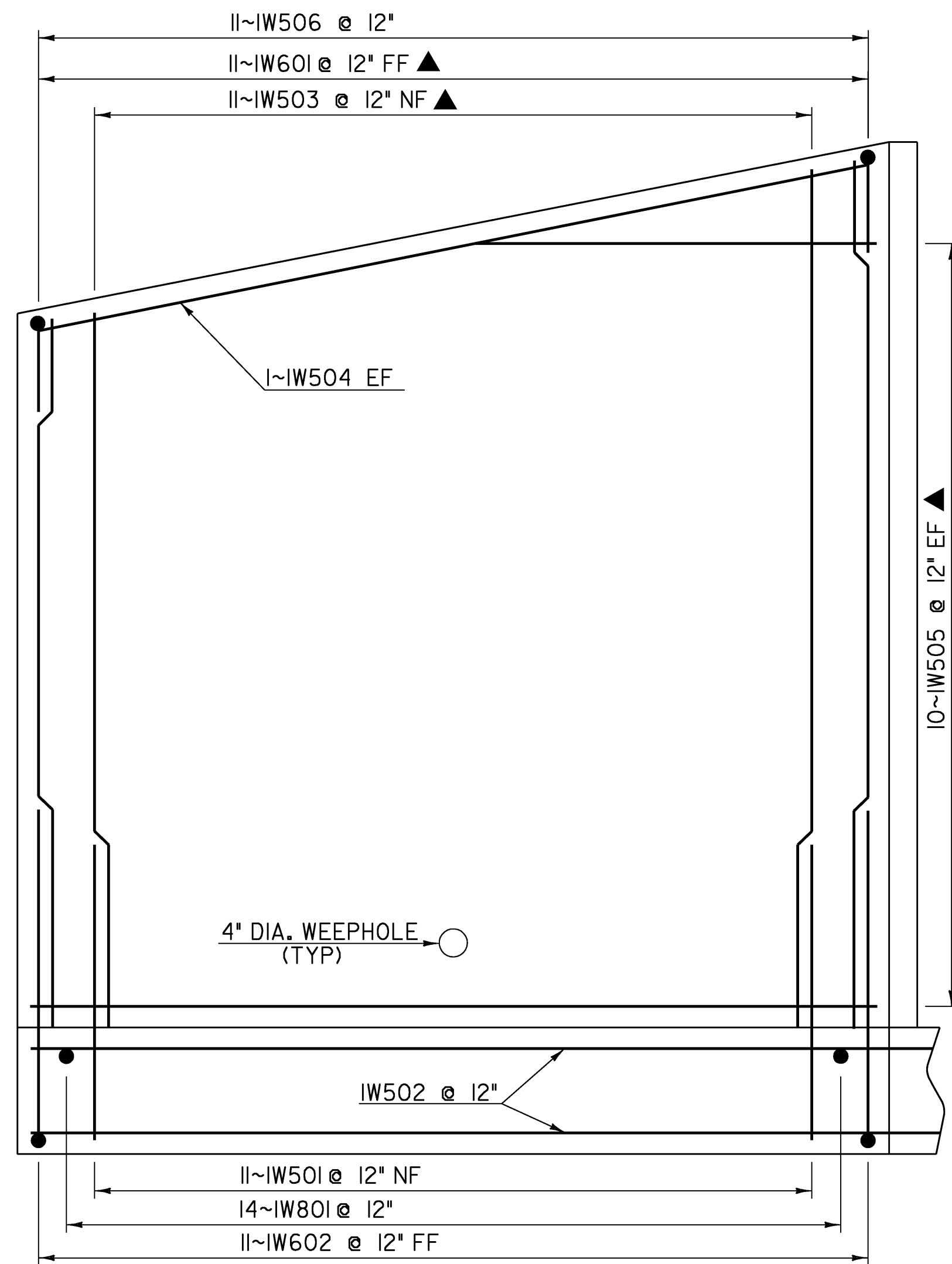
SECTION A-A
SCALE 1/2" = 1'-0"
9 6 3 0



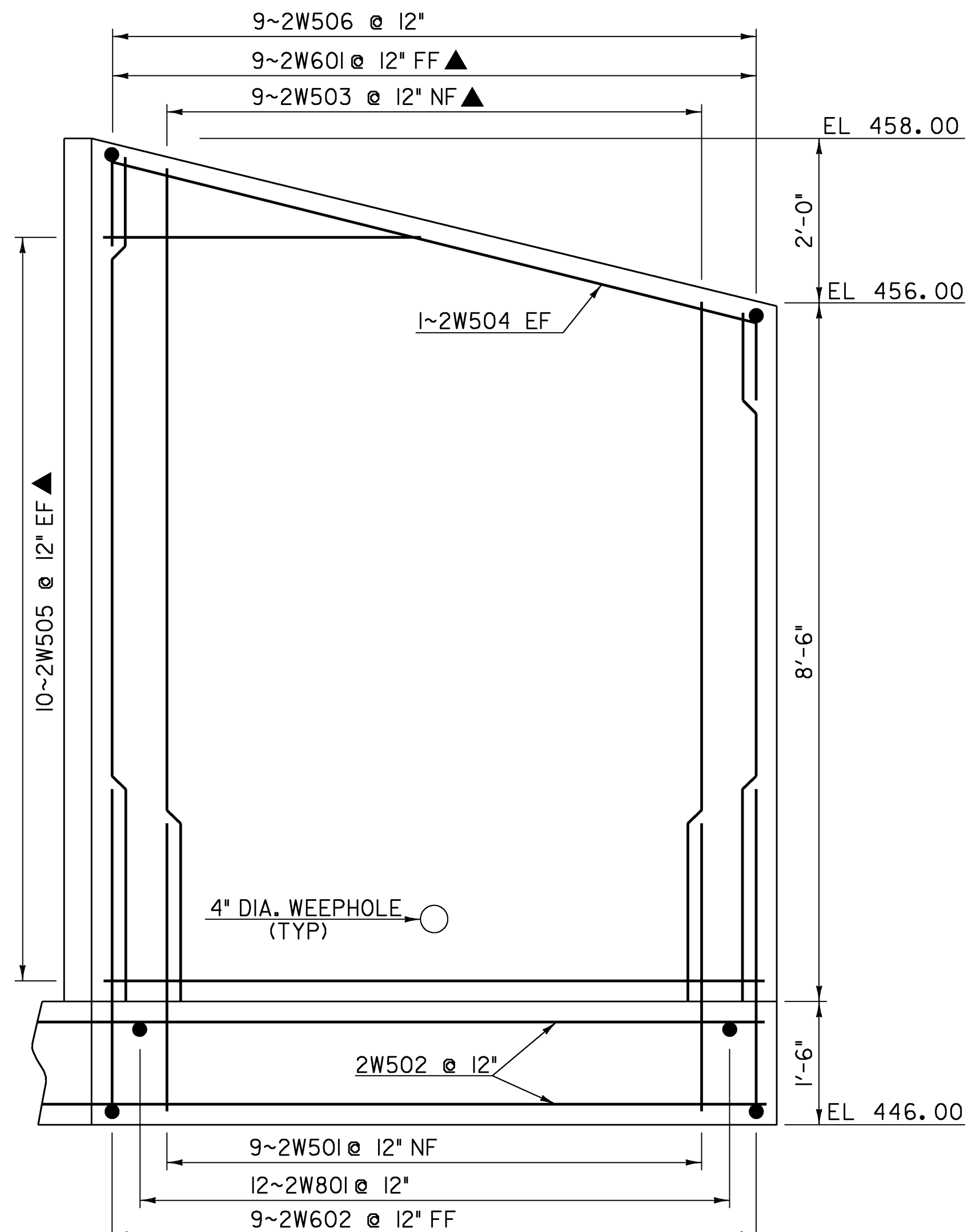
FOOTING STEEL
SCALE 3/4" = 1'-0"
1 0 1 2

NOTE:
NF = NEAR FACE
FF = FAR FACE
EF = EACH FACE
▲ = CUT TO FIT IN FIELD
3" CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS.

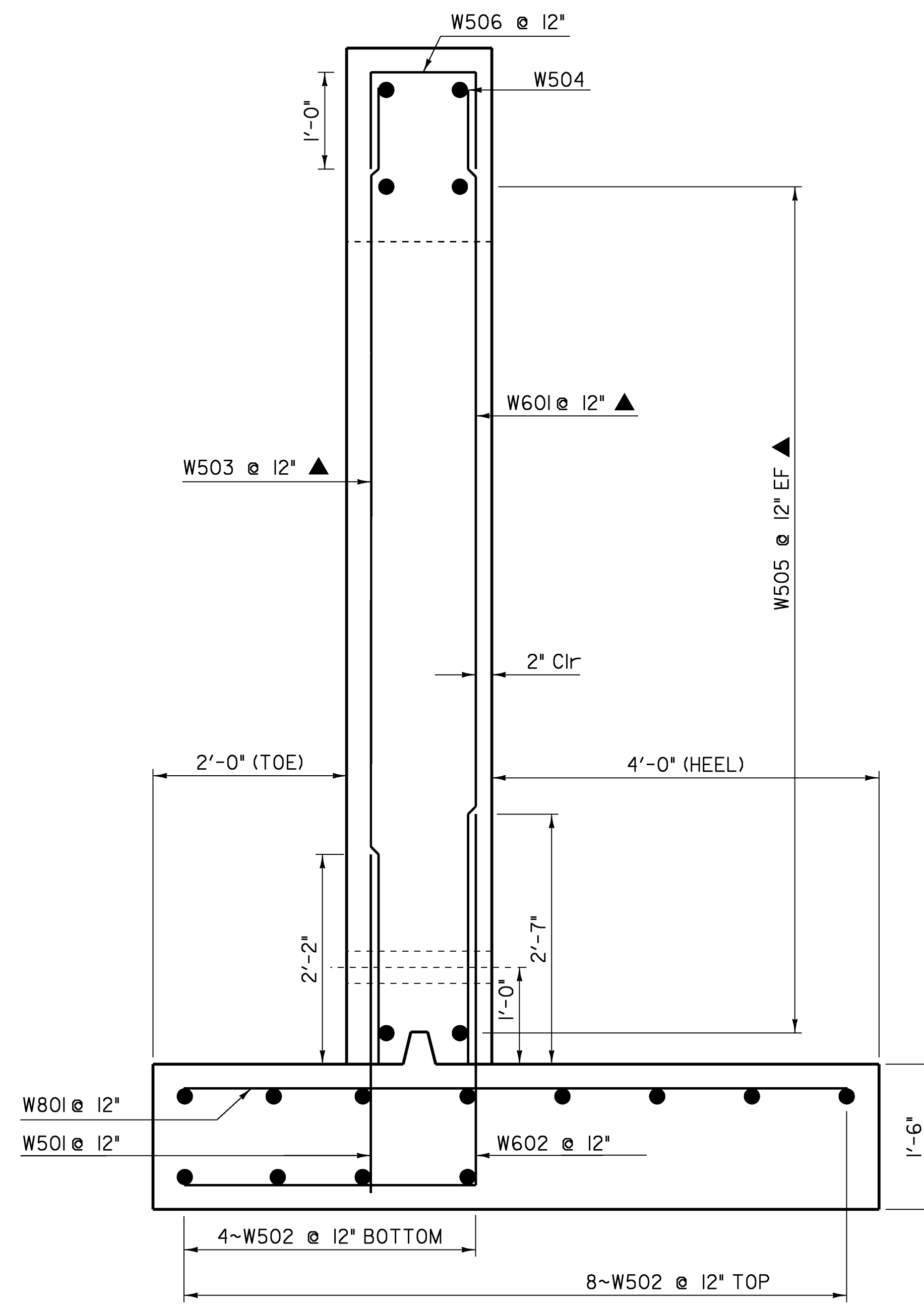
PROJECT NAME:	ROCKINGHAM	PLOT DATE:	30-JUL-2008
PROJECT NUMBER:	IM SCRP(5)	DRAWN BY:	R. FOSTER
FILE NAME:	d07al08Headwall.dgn	CHECKED BY:	W. SYMONDS
PROJECT LEADER:	K. UPMAL	DESIGNED BY:	R. FOSTER
FOOTING DETAIL SHEET		SHEET	8 OF 17



WINGWALL #1



WINGWALL #2



TYPICAL WINGWALL SECTION

NOTE:
 NF = NEAR FACE
 FF = FAR FACE
 EF = EACH FACE
 ▲ = CUT TO FIT IN FIELD
 3" CLR. UNLESS OTHERWISE SPECIFIED ON THE PLANS.

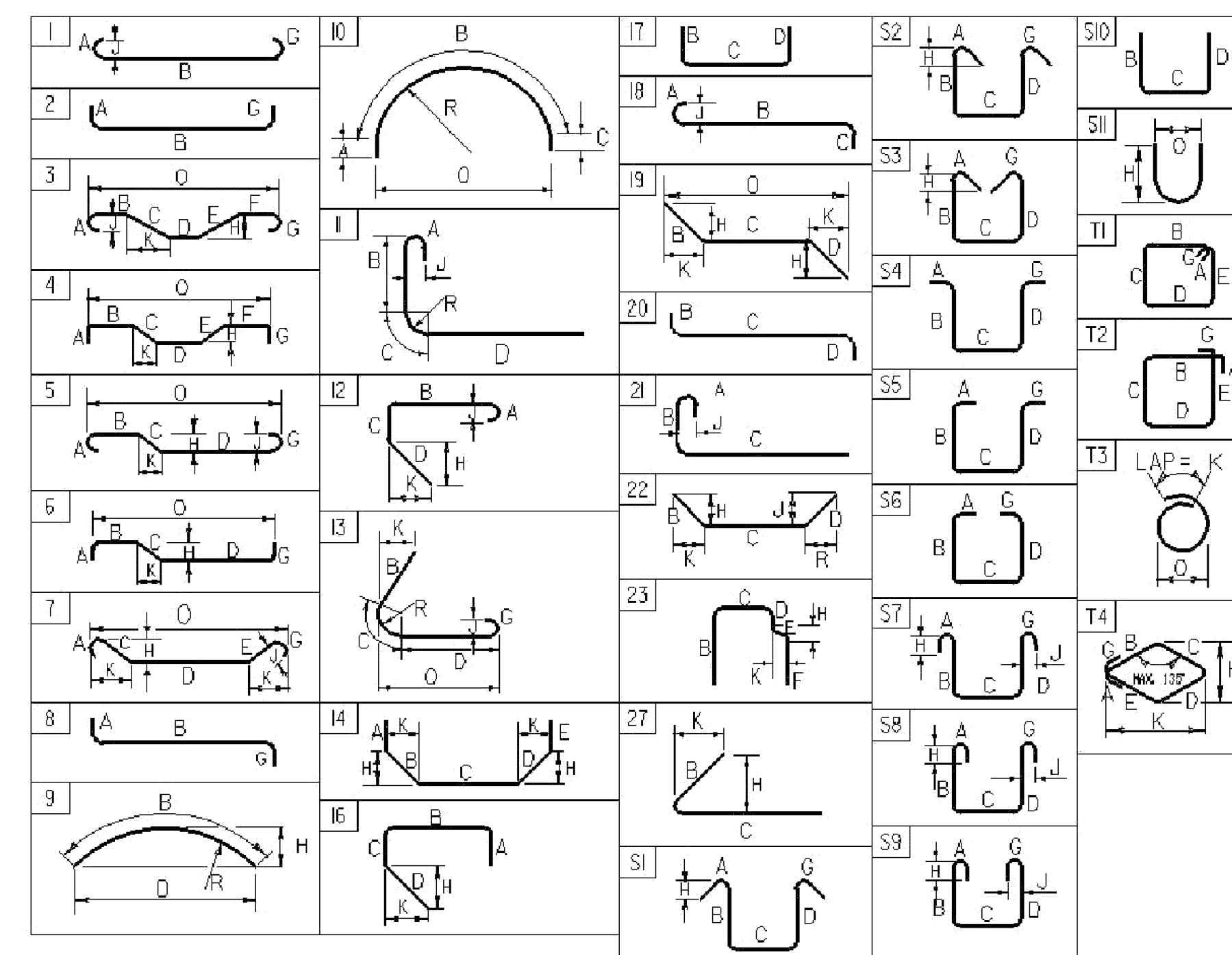
PROJECT NAME: ROCKINGHAM	PLOT DATE: 30-JUL-2008
PROJECT NUMBER: IM SCRP(5)	DRAWN BY: R. FOSTER
FILE NAME: d07al08Headwall.dgn	CHECKED BY: W. SYMONDS
PROJECT LEADER: K. UPMAL	SHEET 9 OF 17
DESIGNED BY: R. FOSTER	
WINGWALL DETAIL SHEET	

REINFORCING STEEL SCHEDULE AND PROJECT NOTES

ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O	ITEM	EACH	SIZE	LENGTH	MARK	TYPE	A	B	C	D	E	F	G	H	J	K	R	O		
HEADWALL FOR CULVERT @ MM 0.351																																					
10	5	3'- 5"		H501	STR																																
12	5	13'- 2"		H502	STR																																
▲	10	5	10'- 3"	H503	STR																																
▲	11	5	9'- 0"	H504	STR																																
▲	22	5	9'- 5"	H505	22		3'- 5"	6'- 0"						2'- 5"		2'- 5"																					
10	5	3'- 1"		H506	17		1'- 0"	1'- 1"	1'- 0"																												
4	5	14'- 6"		H507	14	3'- 3"	2'- 8"	2'- 9"	2'- 8"	3'- 3"				1'- 10"		1'- 10"																					
▲	22	5	5'- 2"	H508	19		2'- 2"	3'- 0"																													
▲	13	6	10'- 3"	H601	STR																																
▲	13	6	6'- 11"	H602	17		3'- 1"	3'- 10"																													
	14	8	7'- 0"	H801	STR																																
WINGWALL #1																																					
11	5	3'- 5"		1W501	STR																																
▲	12	5	12'- 11"	1W502	STR																																
▲	11	5	10'- 3"	1W503	STR																																
2	5	10'- 3"		1W504	STR																																
20	5	10'- 1"		1W505	STR																																
11	5	3'- 1"		1W506	17		1'- 0"	1'- 1"	1'- 0"																												
▲	11	6	10'- 3"	1W601	STR																																
11	6	6'- 11"		1W602	17		3'- 1"	3'- 10"																													
	14	8	7'- 0"	1W801	STR																																
WINGWALL #2																																					
9	5	3'- 5"		2W501	STR																																
▲	12	5	10'- 11"	2W502	STR																																
▲	9	5	10'- 3"	2W503	STR																																
2	5	8'- 4"		2W504	STR																																
20	5	8'- 1"		2W505	STR																																
9	5	3'- 1"		2W506	17		1'- 0"	1'- 1"	1'- 0"																												
▲	9	6	10'- 3"	2W601	STR																																
9	6	6'- 11"		2W602	17		3'- 1"	3'- 10"																													
12	8	7'- 0"		2W801	STR																																

~ NOTES ~

- UNLESS OTHERWISE DESIGNATED, ALL BAR REINFORCEMENT FOR CONCRETE IN SIZES UP TO AND INCLUDING NO. 18 SHALL CONFORM TO THE REQUIREMENTS OF THE "SPECIFICATIONS FOR DEFORMED BILLET-STEEL BARS FOR CONCRETE REINFORCEMENT", AASHTO M 31 (ASTM A 615-S1). ALL BARS SHALL BE GRADE 60, UNLESS OTHERWISE DESIGNATED.
- FOR TYPICAL BENDING DETAILS, RECOMMENDED PIN DIAMETER "D" OF BENDS AND HOOKS, AND OTHER STANDARD PRACTICE, SEE CURRENT CONCRETE REINFORCING STEEL INSTITUTE "MANUAL OF STANDARD PRACTICE".
- BARS WHICH REQUIRE MORE ACCURATE BENDING THAN STANDARD PRACTICES SHOULD HAVE LIMITS INDICATED.
- ALL DIMENSIONS ARE OUT TO OUT OF BAR EXCEPT "A" AND "G" ON STANDARD 180 DEGREE AND 135 DEGREE HOOKS.
- "J" DIMENSION ON 180 DEGREE HOOKS TO BE SHOWN ONLY WHERE NECESSARY TO RESTRICT HOOK SIZE. OTHERWISE, STANDARD HOOKS ARE TO BE USED.
- "H" DIMENSION ON STIRRUPS TO BE SHOWN ONLY WHEN NECESSARY TO MAINTAIN CLEARANCES.
- WHERE SLOPE DIFFERS FROM 45 DEGREES, DIMENSIONS "H" AND "K" MUST BE SHOWN.
- ▲ DENOTES BARS TO BE CUT IN FIELD.
- ⊕ DENOTES ONE EXTRA BAR ADDED FOR TESTING PURPOSES.
- △ DENOTES TWO EXTRA BARS ADDED FOR TESTING PURPOSES.
- E IN BAR MARK PREFIX DENOTES EPOXY COATED REINFORCING STEEL.



GENERAL NOTES

- ALL MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE STATE OF VERMONT AGENCY OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 2006, AND ITS LATEST REVISIONS, AND THE AASHTO STANDARD SPECIFICATIONS FOR HIGHWAY BRIDGES, DATED 2002, AND ITS LATEST REVISIONS.
- ALL DIMENSIONS SHOWN IN THE PLANS ARE HORIZONTAL OR VERTICAL AND ARE GIVEN AT 68 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE

HEADWALL NOTES

- REINFORCING STEEL PLACEMENT TOLERANCES SHALL BE AS FOLLOWS:
 SPACING: +/- 1"
 CLEARANCE: +/- 1/4"
- THE KEY IN CONCRETE CONSTRUCTION JOINTS SHALL BE MONOLITHIC AND CONTINUOUS FOR THE FULL LENGTH OF THE JOINT. UPWARD KEYS SHALL BE PLACED INTEGRALLY WITH THE CONCRETE BELOW THE JOINT.
- JOINTS AND SCORE MARKS IN CONCRETE SHALL BE CONSTRUCTED AS SHOWN IN THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER.
- ALL EXPOSED EDGES OF CONCRETE SHALL BE CHAMFERED 1 INCH X 1 INCH.
- THE INLET SHALL BE CUT TO THE LOCATION SHOWN WITH AN ABRASIVE SAW TO BE VERTICAL PRIOR TO PLACING THE HEADWALL. FLAME CUTTING OF THE EXISTING PIPE WILL NOT BE PERMITTED.
 - PRIOR TO INSTALLING THE NEW CONCRETE HEADWALLS, THE OUTSIDE OF THE EXISTING CORRUGATED METAL PIPES SHALL BE CLEANED TO REMOVE ANY CONTAMINANT THAT WOULD PREVENT A GOOD BOND BETWEEN THE PIPE AND CONCRETE.
 - THE COST OF CLEANING AND CUTTING THE EXISTING PIPE WILL BE INCIDENTAL TO CONTRACT ITEM 501.34.
- THE SIZES, ELEVATION, AND SLOPES OF THE EXISTING PIPES SHALL BE VERIFIED BY THE CONTRACTOR PRIOR TO ANY WORK.
- WATER REPELLENT, SILANE SHALL BE APPLIED TO ALL EXPOSED CONCRETE SURFACES.

ASTM STANDARD REINFORCING BARS				
BAR SIZE DESIGNATION	WEIGHT POUNDS PER FOOT	NOMINAL DIMENSIONS ROUND SECTION		
		DIAMETER INCHES	AREA INCHES ²	PERIMETER INCHES
#3	0.376	0.375	0.11	1.178
#4	0.668	0.500	0.20	1.571
#5	1.043	0.625	0.31	1.963
#6	1.502	0.750	0.44	2.356
#7	2.044	0.875	0.60	2.749
#8	2.670	1.000	0.79	3.142
#9	3.400	1.128	1.00	3.544
#10	4.303	1.270	1.27	3.990
#11	5.313	1.410	1.56	4.430
#14	7.65	1.693	2.25	5.32
#18	13.60	2.257	4.00	7.09

PROJECT NAME: **ROCKINGHAM**
 PROJECT NUMBER: **IM SCR(5)**
 FILE NAME: **d07a108Steel.dgn** PLOT DATE: **5/30/2008**
 PROJECT MANAGER: **K. UPMAL** DRAWN BY: **R. FOSTER**
 DESIGNED BY: **R. FOSTER** CHECKED BY: **W. SYMONDS**
REINFORCING STEEL SCHEDULE SHEET SHEET **10** OF **17**

EROSION PREVENTION AND SEDIMENT CONTROL NARRATIVE

EROSION CONTROL NARRATIVE

1.1 PROJECT DESCRIPTION

THE ROCKINGHAM INTERSTATE 91 CULVERT REHABILITATION PROJECT INCLUDES WORK TO BE PERFORMED AT ONE ISOLATED LOCATION, MILE MARKER 0.351 ON THE INTERSTATE 91 NORTHBOUND EXIT 6 OFF-RAMP IN THE TOWN OF ROCKINGHAM, COUNTY OF WINDHAM.

THE PROJECT WILL CONSIST OF ONE INSTALLATION OF A CURED-IN-PLACE PIPE LINER, INSTALLATION OF A CONCRETE HEADWALL AND WINGWALLS. TOPSOIL, SEED, MULCH OR STONE-FILL SHALL BE APPLIED TO ALL DISTURBED AREAS. TYPE III STONE FILL WILL BE PLACED AT CULVERT INLET AND TYPE IV AT CULVERT OUTLET.

NOTE: AREA OF DISTURBANCE SHALL INCLUDE LIMITS OF EARTH DISTURBANCE WITHIN THE PROJECT AREA, INCLUDING ANY WASTE, STAGING AND BORROW AREAS WITHIN OR DIRECTLY ADJACENT TO THE PROJECT LIMITS.

TOTAL AREA OF DISTURBANCE IS APPROXIMATELY 0.522 ACRES.

IT IS ANTICIPATED THAT THIS PROJECT WILL LAST ONE CONSTRUCTION SEASON.

1.2 SITE INVENTORY

1.2.1 OFF SITE DRAINAGE CHARACTERISTICS (UP AND DOWN-GRADIENT)

THE ROCKINGHAM INTERSTATE 91 NORTHBOUND EXIT 6 OFF RAMP PROJECT IS LOCATED IN A RURAL AREA. THE PROJECT SITE WILL MAINLY RECEIVE RUNOFF FROM THE ROADWAY AND WOODED AREAS.

1.2.2 DRAINAGE, WATERWAYS, BODIES OF WATER, AND PROXIMITY TO NATURAL OR MAN-MADE WATER FEATURES

THE CULVERT LOCATED AT MILE MARKER 0.351 CARRIES WATER FROM A SMALL STREAM BENEATH THE NORTHBOUND EXIT 6 OFF-RAMP. THE UNNAMED STREAM COLLECTS RUNOFF FROM AN AREA WEST OF DARBY ROAD AND WEST OF THE INTERSTATE.

1.2.3 TOPOGRAPHY, EXISTING ROADS, BUILDINGS, UTILITIES

THE ROADWAY EMBANKMENT PRIMARILY INCLUDES 1:2 SIDE SLOPES. THE CULVERT INLET AND OUTLET ARE GENERALLY EXPOSED TO EITHER MODERATE SIDE SLOPES OR SWALES. THE MAJORITY OF THE PROJECT IS LOCATED IN A GRASSED AREA. WOODED AREAS ARE LOCATED EAST AND WEST OF THE NORTHBOUND EXIT 6 OFF-RAMP. PAVED AREAS INCLUDE THE EXISTING INTERSTATE AND OFF RAMP.

1.2.4 VEGETATION

VEGETATION IMPACTS RESULTING FROM THIS PROJECT INCLUDE LOCALIZED CLEARING OF VEGETATION ON EMBANKMENT SIDE-SLOPES BETWEEN THE EXISTING EDGES OF PAVEMENT AND TOES OF SLOPE.

1.2.5 SOILS

ALL SOIL DATA CAME FROM THE U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE FOR THE COUNTY OF WINDHAM, VERMONT. THE CONSTRUCTION ACTIVITIES AT MILE MARKER 0.351 ARE IN THE EXISTING STATE R.O.W. THE SOIL AT THIS LOCATION IS FILL MATERIAL PLACED DURING THE CONSTRUCTION OF THE INTERSTATE AND THERE ARE NO LISTED CORRESPONDING K-FACTORS

1.2.6 SENSITIVE RESOURCE AREAS

CRITICAL HABITATS: NO
HISTORICAL OR ARCHEOLOGICAL AREAS: NO
PRIME AGRICULTURAL LAND: NO
THREATENED AND ENDANGERED SPECIES: NO
WATER RESOURCE: UNNAMED STREAM
WETLANDS: NO

1.3 RISK EVALUATION

THIS PROJECT DOES NOT FALL UNDER THE JURISDICTION OF CONSTRUCTION GENERAL PERMIT 3-9020 BASED ON THE PROJECT IMPACT AREA. SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT, THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL PERMITTING WITH VANR VIA FILING OF THE APPROPRIATE NOTICE OF INTENT UNDER THE CONSTRUCTION GENERAL PERMIT PROCESS.

1.4 EROSION PREVENTION AND SEDIMENT CONTROL

THE EROSION CONTROL PLANS ARE MEANT AS A GUIDELINE FOR PREVENTING EROSION AND CONTROLLING SEDIMENT TRANSPORT. THE WORK OUTLINED IN THIS NARRATIVE CONSISTS OF APPLYING MEASURES THROUGHOUT THE LIFE OF THE PROJECT MINIMIZING SEDIMENT TRANSPORT TO THE RECEIVING WATERS. THE MEASURES INCLUDE STABILIZATION AND STRUCTURAL PRACTICES, STORM WATER CONTROLS AND OTHER POLLUTION PREVENTION CONTROLS.

PREVENTING INITIAL SOIL EROSION IS MUCH MORE EFFECTIVE THAN TREATING ERODED SEDIMENT. MAINTAINING VEGETATED BUFFERS ALONG STREAM BANKS, WETLANDS OR OTHER SENSITIVE AREAS IS A CRUCIAL EROSION AND SEDIMENT CONTROL MEASURE THAT SHOULD BE ESTABLISHED WHEREVER POSSIBLE.

ALL MEASURES SHALL BE REGULARLY MAINTAINED AND SHALL BE CHECKED FOR SEDIMENT BUILD-UP. SEDIMENT SHALL BE DISPOSED AT AN APPROVED SITE WHERE IT WILL NOT BE SUBJECT TO EROSION.

(REFER TO THE LOW RISK SITE HANDBOOK AND APPROPRIATE DETAIL SHEETS FOR EACH PRACTICE REQUIRED ON THE PROJECT TO INCLUDE BUT NOT LIMITED TO THE FOLLOWING.) THIS BOOK CAN BE DOWNLOADED AT THE FOLLOWING WEB ADDRESS:
[HTTP://WWW.VTWATERQUALITY.ORG/STORMWATER/HTM/SW_CGP.HTM](http://www.vtwaterquality.org/stormwater/htm/sw_cgp.htm)

PROJECT DEMARCATION FENCING, DENOTED -PDF- ON THE PLANS IS USED TO DELINEATE THE LIMITS THE CONTRACTOR CAN ACCESS WITH CONSTRUCTION EQUIPMENT. THIS MEASURE LIMITS THE AREA THAT CAN BE DISTURBED AND EXPOSED TO EROSION.

EMPLOY TEMPORARY STABILIZATION PRACTICES IN INCREMENTAL STAGES (PHASING) AS CONSTRUCTION PROCEEDS. ADDITIONAL MEASURES MAY BE NEEDED DUE TO THE PHASING OF THE PROJECT AND AS DIRECTED BY THE ENGINEER.

SILT FENCE SHALL BE INSTALLED PRIOR TO ANY UP SLOPE WORK AS SHOWN ON THE PLANS OR AS NECESSARY.

SEEDING, MULCHING AND BIODEGRADABLE EROSION CONTROL MATTING OR AN EQUIVALENT SHALL BE USED TO STABILIZE ALL SLOPES STEEPER THAN 1:3. THESE SLOPES SHALL BE STABILIZED WITHIN 48 HOURS OF REACHING FINAL GRADE.

1.4.1 DEWATERING ACTIVITIES

A DEWATERING PLAN SHALL BE SUBMITTED BY THE CONTRACTOR PRIOR TO CONSTRUCTION ACTIVITIES FOR REVIEW BY THE VERMONT AGENCY OF NATURAL RESOURCES. EFFORTS SHOULD BE MADE BY THE CONTRACTOR TO PERFORM WORK IN LOW FLOW CONDITIONS IN COORDINATION WITH THE RESIDENT ENGINEER.

PROJECT NAME: ROCKINGHAM

PROJECT NUMBER: IM SCRP(5)

FILE NAME: d07a108erod.dgn

PROJECT LEADER: K. UPMAL

DESIGNED BY: T. GUAZZONI

EPSC NARRATIVE

PLOT DATE: 30-JUL-2008

DRAWN BY: T. GUAZZONI

CHECKED BY: K. UPMAL

SHEET II OF 17

CONSERVATION SEED MIX

RURAL AREA - SEED MIXTURE

% WT.	LBS./A.	NAME	PUR %	GERM %
37.5	22.5	CREeping RED FESCUE	98	85
37.5	22.5	TALL FESCUE	95	90
5.0	3.0	RED TOP	95	90
15.0	9.0	BIRDSFOOT TREFOIL	98	85
5.0	3.0	ANNUAL RYEGRASS	95	85
100.00	60.0			

SEED MIXTURE:
SHALL NOT HAVE A WEED CONTENT EXCEEDING 0.40% BY WEIGHT AND SHALL BE FREE OF ALL NOXIOUS WEED SEED.

SEED:
TO BE APPLIED PER SEEDING FORMULA OR AS DIRECTED BY THE RESIDENT ENGINEER

FERTILIZER:
FORMULA 10-20-10 TO BE USED WITH SEED, APPLIED AT THE RATE OF 500 LBS/ACRE (HYDROSEEDERS MAY USE 19-19-19 FORMULA)

AGRICULTURAL LIMESTONE:
TO BE APPLIED AT THE RATE OF 2 TONS/ACRE OR AS DIRECTED BY THE RESIDENT ENGINEER

HAY MULCH:
TO BE APPLIED ON EARTH SLOPES AT THE RATE OF 2 TONS/ACRE OR AS DIRECTED BY THE RESIDENT ENGINEER

TOPSOIL:
TO BE USED WITH SEED AS INDICATED ON THE PLANS OR AS DIRECTED BY THE RESIDENT ENGINEER

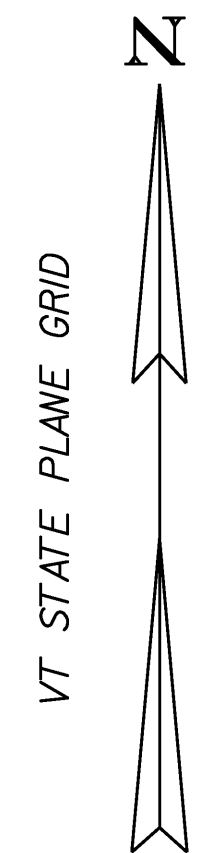
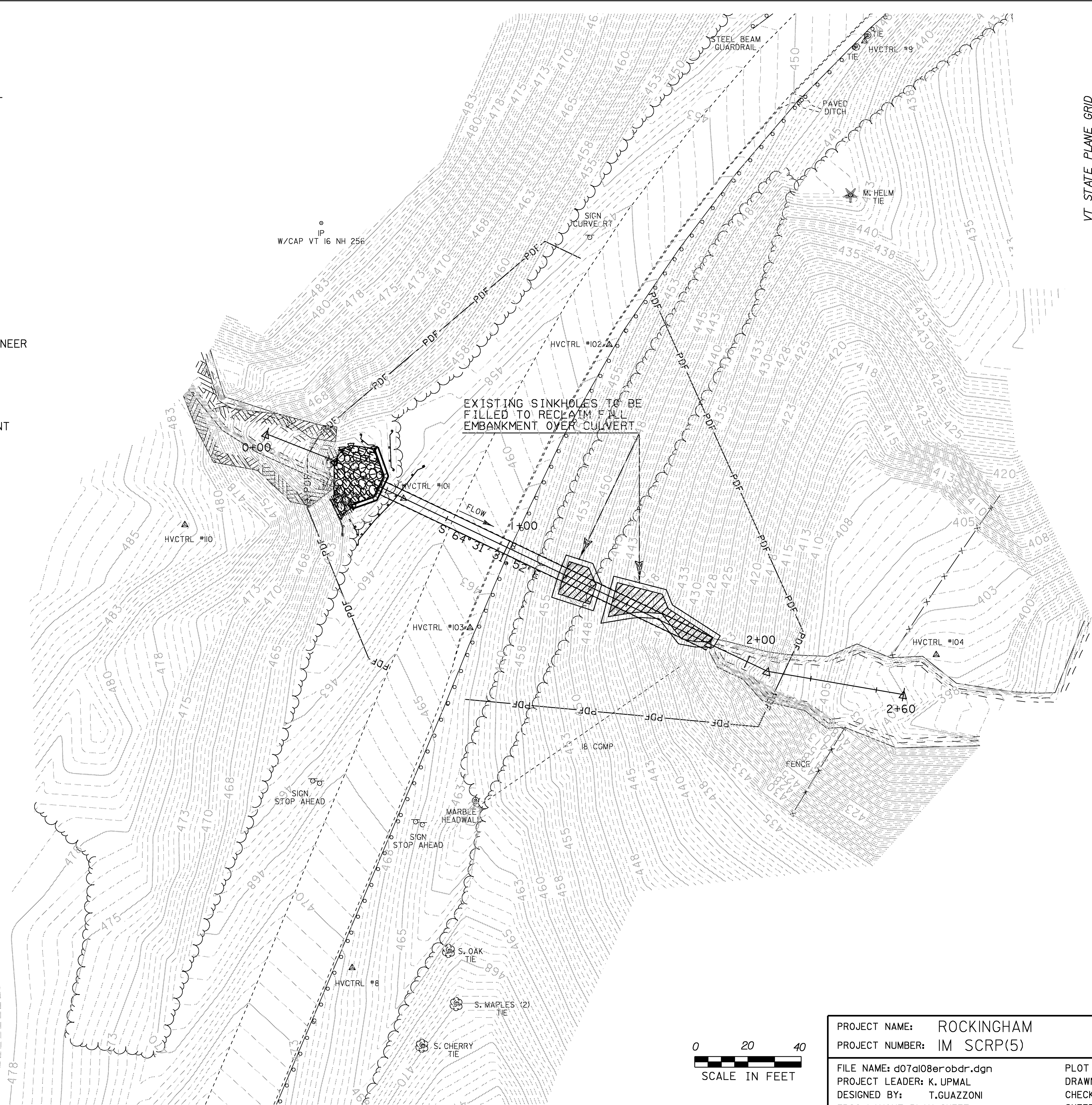
NOTE:
IF A HYDROSEEDER IS USED THE APPLICATION RATES SHALL BE DOUBLED

GENERAL NOTES:

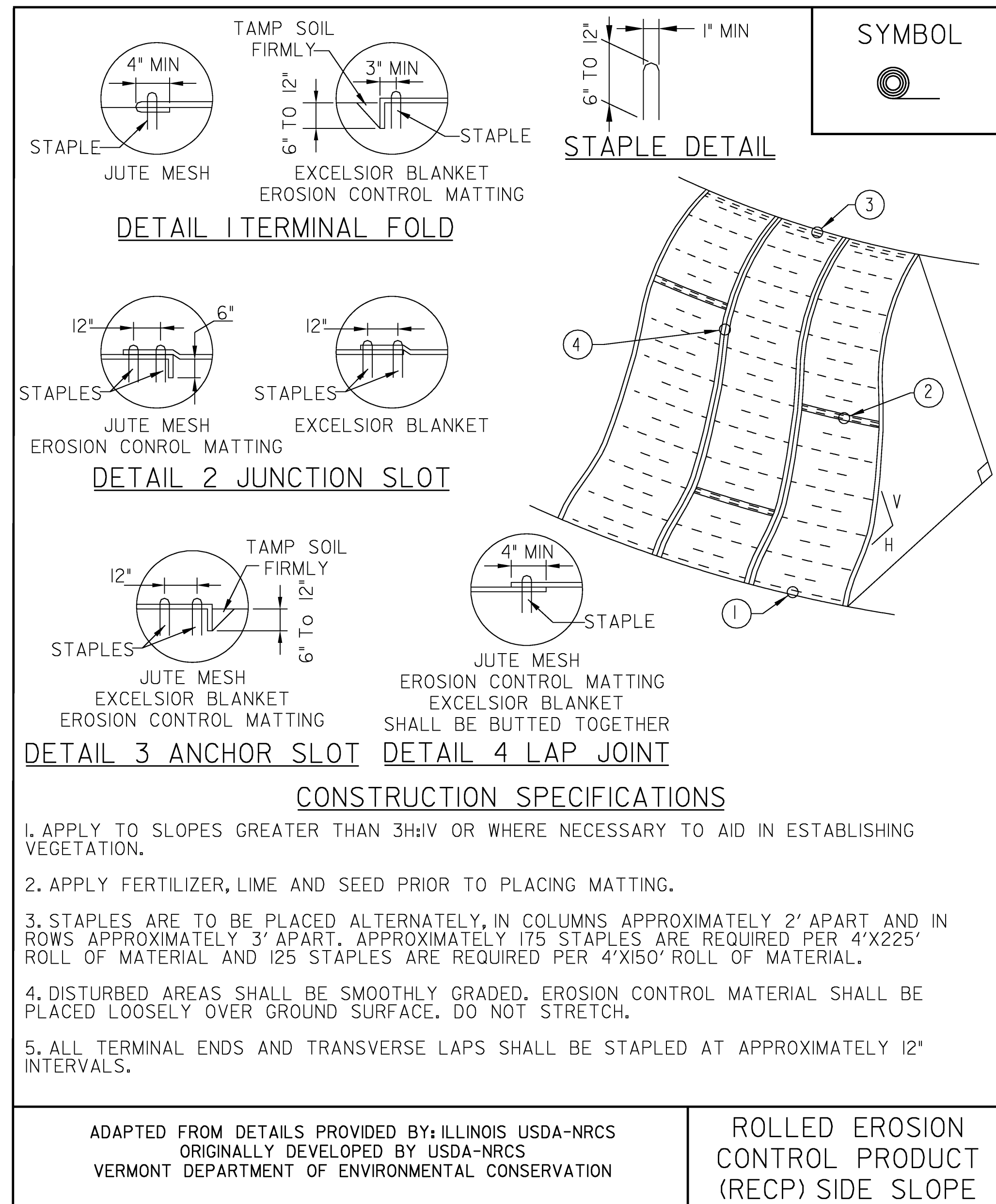
- SHOULD CHANGES PRIOR TO OR DURING CONSTRUCTION RESULT IN ONE OR MORE ACRES OF EARTH DISTURBANCE OR SHOULD THE PROJECT BECOME PART OF A LARGER PLAN OF DEVELOPMENT THEN THE SELECTED CONTRACTOR WILL BE RESPONSIBLE FOR ADDITIONAL PERMITTING WITH VANR VIA FILING OF THE APPROPRIATE NOTICE OF INTENT UNDER THE CONSTRUCTION GENERAL PERMIT PROCESS.
- BRUSH REMOVAL SHALL BE MINIMIZED TO THAT WHICH IS NECESSARY TO INSTALL THE LINER.
- GRUBBING OF STUMPS IS NOT PERMITTED.
- INSTALL, MONITOR, AND REPLACE OR REPAIR EROSION AND SEDIMENT CONTROL MEASURES DURING CONSTRUCTION.

LEGEND

	PERMANENT SLOPE LIMITS
	PROJECT DEMARCATION FENCE
	GEOTEXTILE FOR SILT FENCE



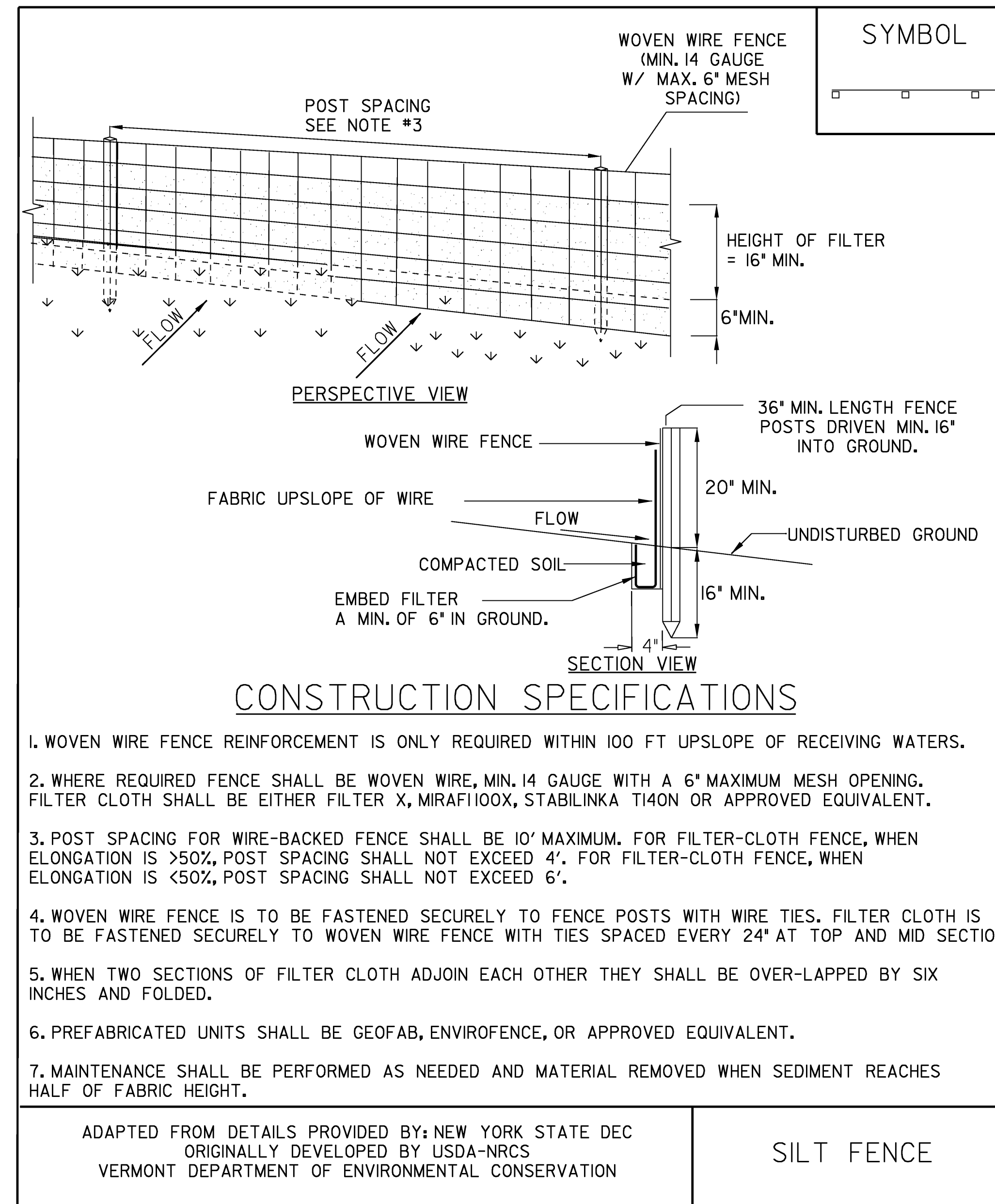
PROJECT NAME: ROCKINGHAM	PLOT DATE: 30-JUL-2008
PROJECT NUMBER: IM SCRP(5)	DRAWN BY: T.GUAZZONI
FILE NAME: d07a108erobdr.dgn	DESIGNED BY: T.GUAZZONI
EPSC LAYOUT PLAN SHEET	CHECKED BY: B. KIPP
	SHEET 12 OF 17



NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS ITEM SHALL BE PAID FOR UNDER ITEM 900.645 SPECIAL PROVISION (TEMPORARY ACCESS ROAD AND STAGING AREAS, CULVERT)

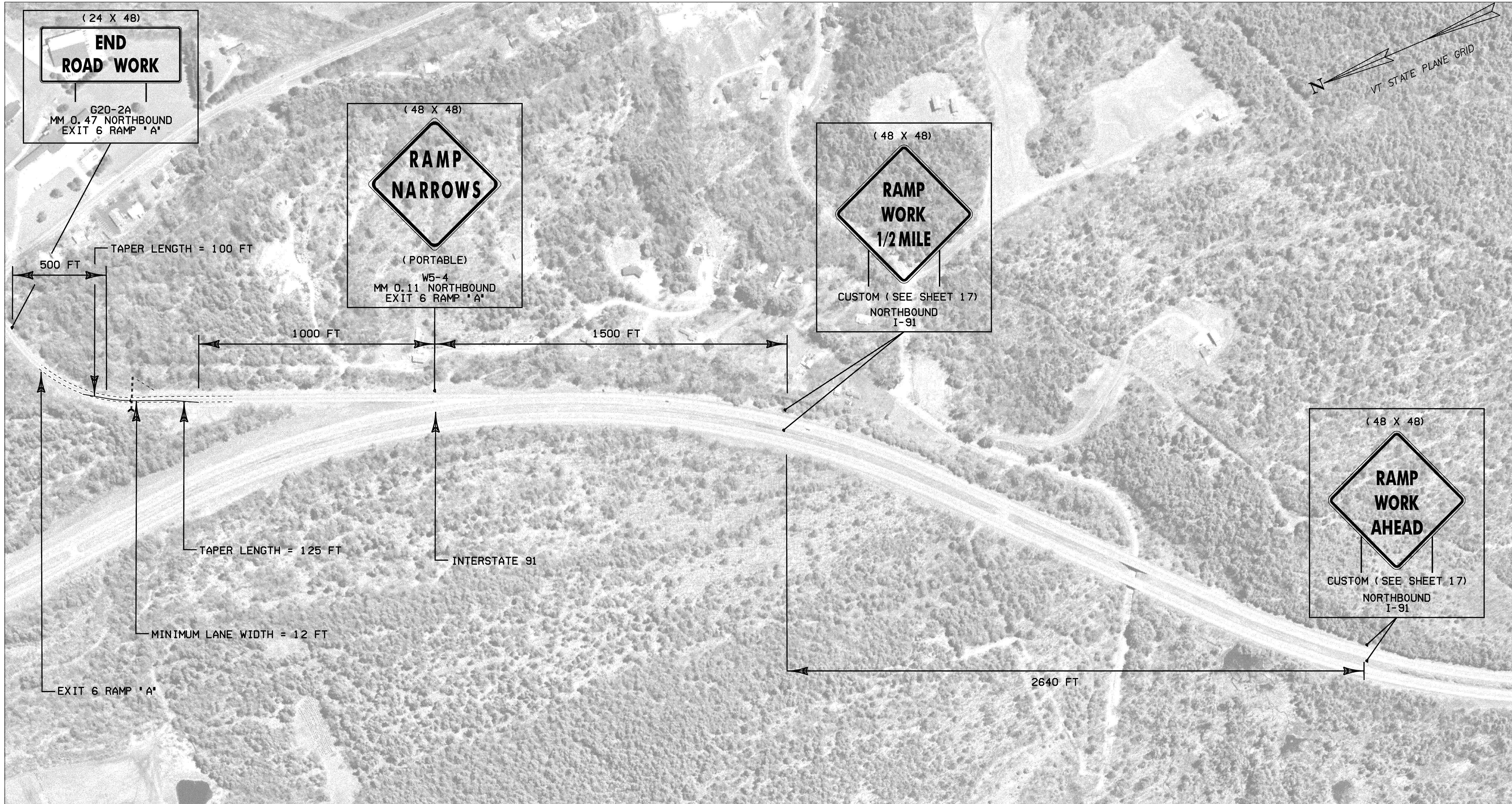
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APRIL 16, 2007	WHF
REVISIONS	



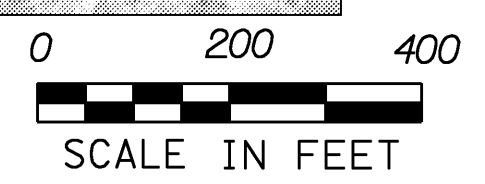
NOTES:
REFER TO "THE VERMONT STANDARDS & SPECIFICATIONS FOR EROSION PREVENTION & SEDIMENT CONTROL -2006- " FROM THE VT AGENCY OF NATURAL RESOURCES FOR ADDITIONAL GUIDANCE.

THIS ITEM SHALL BE PAID FOR UNDER ITEM 649.51 GEOTEXTILE FOR SILT FENCE (FILTER FABRIC ONLY FENCE)

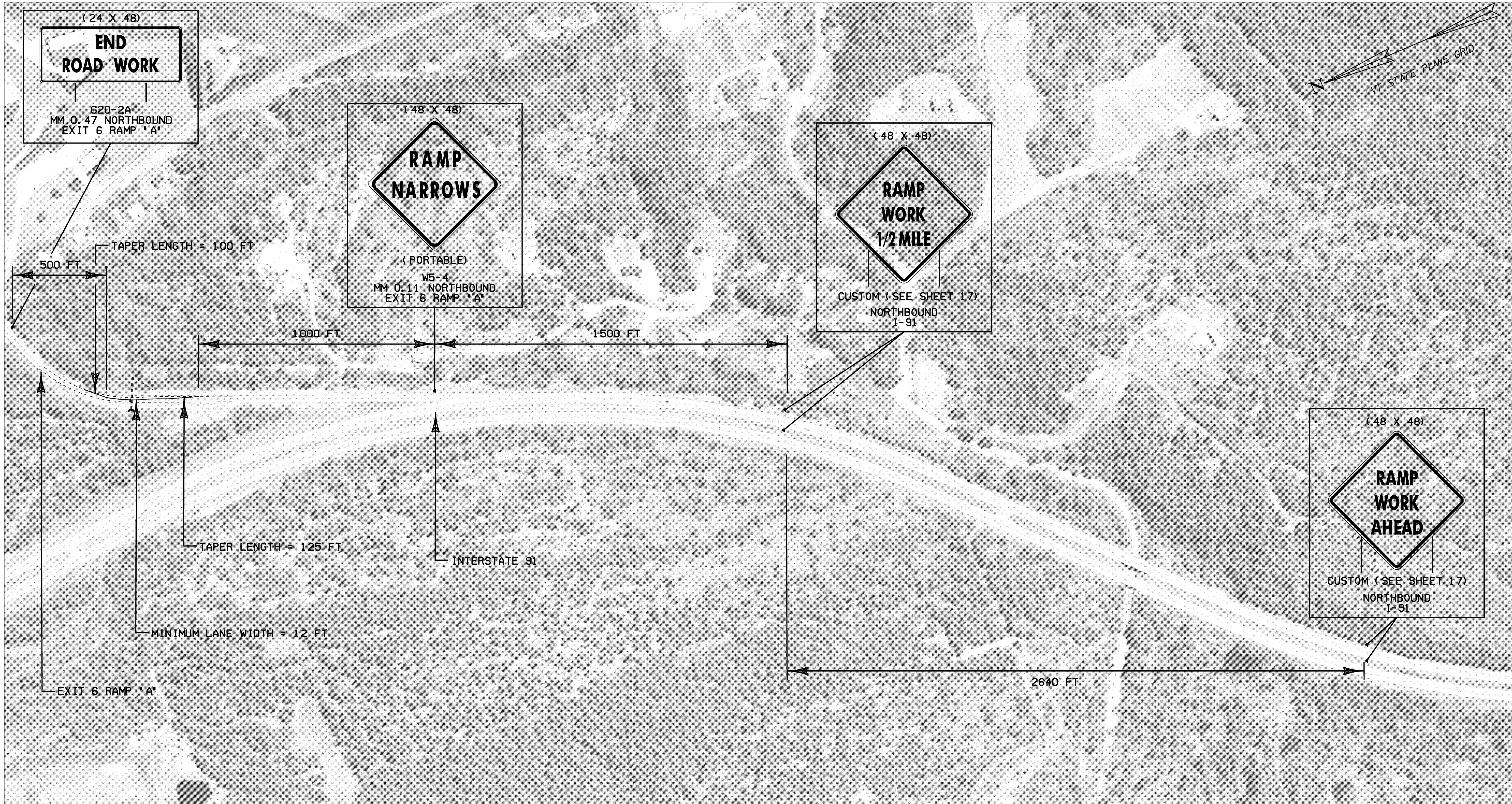
PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	IM SCRP(5)
FILE NAME:	d07a108erod.dgn
PROJECT LEADER:	K. UPMAL
DESIGNED BY:	T. GUAZZONI
EPSC DETAILS	
PLOT DATE:	21-AUG-2008
DRAWN BY:	T. GUAZZONI
CHECKED BY:	B. KIPP
SHEET	13 OF 17



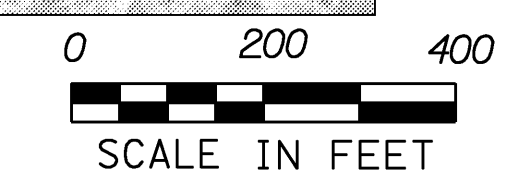
TRAFFIC DIRECTED TO RIGHT SIDE OF RAMP



PROJECT NAME:	ROCKINGHAM	PLOT DATE:	21-AUG-2008
PROJECT NUMBER:	IM SCR(5)	DRAWN BY:	T. GUAZZONI
FILE NAME:	d07a108Tc.dgn	CHECKED BY:	B. KIPP
PROJECT LEADER:	K. UPMAL	TRAFFIC CONTROL PLAN SHEET 1	SHEET 14 OF 17
DESIGNED BY:	T. GUAZZONI		



TRAFFIC DIRECTED TO LEFT SIDE OF RAMP



PROJECT NAME:	ROCKINGHAM	PLOT DATE:	21-AUG-2008
PROJECT NUMBER:	IM SCR(5)	DRAWN BY:	T. GUAZZONI
FILE NAME:	d07a108Tc.dgn	CHECKED BY:	B. KIPP
PROJECT LEADER:	K. UPMAL	TRAFFIC CONTROL PLAN SHEET 2	SHEET 15 OF 17
DESIGNED BY:	T. GUAZZONI		

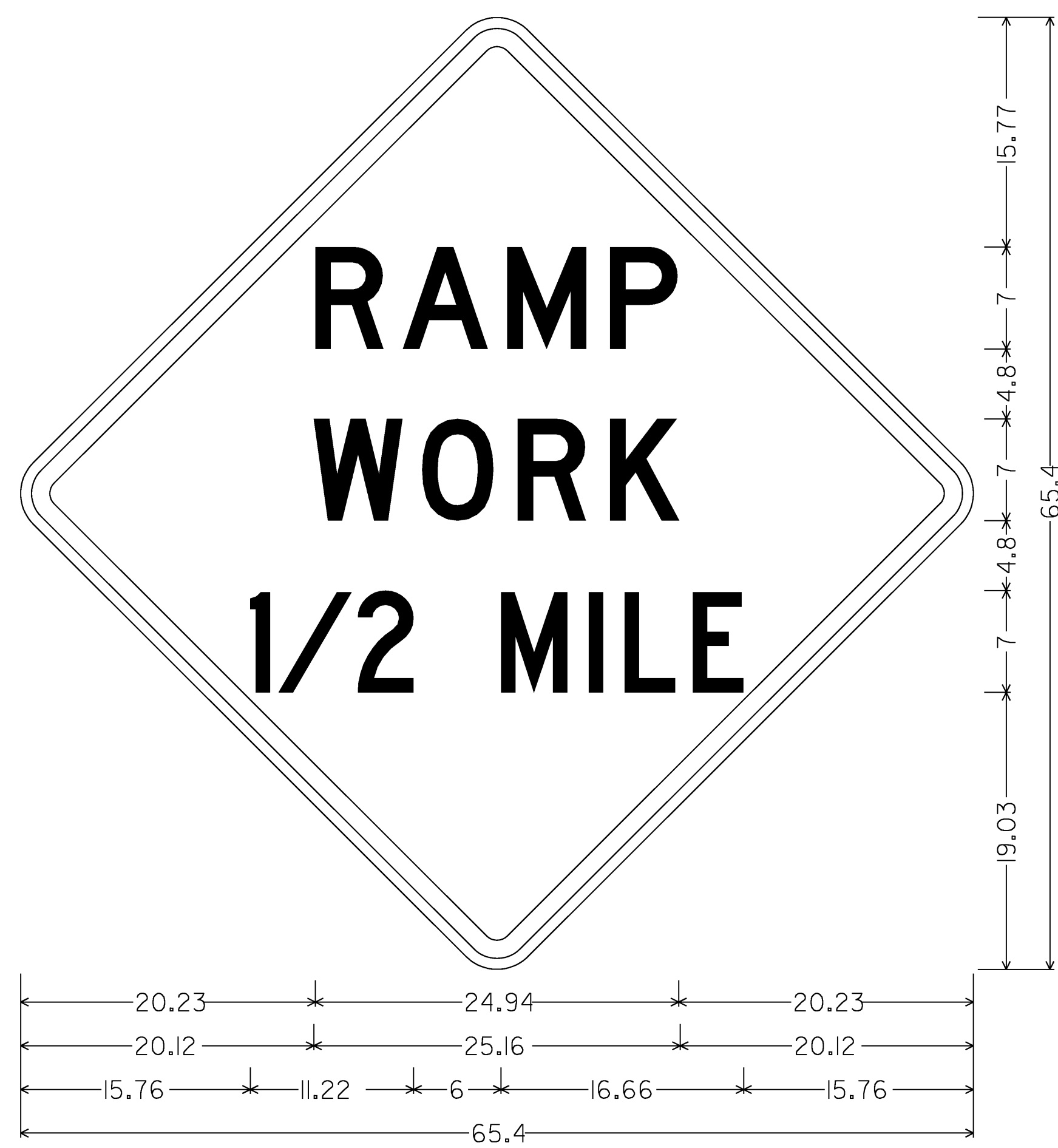
TRAFFIC CONTROL GENERAL NOTES

1. NOTE THAT LARGE CONSTRUCTION VEHICLES MAY BE REQUIRED TO ACCESS THE CULVERT INLET AT MILE MARKER 0.351. A TEMPORARY CLOSURE OF A PORTION OF THE RAMP (12' TRAVEL LANE) SHOULD ALLOW FOR ADEQUATE WIDTH TO ACCESS THE PROJECT SITE. ASSOCIATED TRAFFIC CONTROL AND SIGNAGE FOR THIS OPERATION SHALL BE INSTALLED PER THE MANUAL ON UNIFORM CONTROL DEVICES (MUTCD).
2. TEMPORARY LANE AND/OR SHOULDER CLOSURE SHALL BE ALLOWED DURING WORKING HOURS. THE OFF RAMP SHALL BE RESTORED TO FULL CAPACITY AT THE CLOSE OF DAILY CONSTRUCTION ACTIVITIES.
3. TRAFFIC CONTROL WARNING SIGNS SHALL BE PROVIDED ON THE APPROACH PER THE MUTCD. ADDITIONAL PROJECT CONSTRUCTION SIGNS SHALL BE INSTALLED AS REQUIRED BY THE RESIDENT ENGINEER PER THE MUTCD. PAYMENT FOR THESE SIGNS, THE REFLECTORIZED PLASTIC DRUMS, ETC., SHALL BE PAID UNDER CONTRACT ITEM NO. 641.10.
4. FOR CHANNELIZING DEVICES, DRUMS SHALL BE USED AS A MINIMUM.
5. NON CRASHWORTHY FEATURES RESULTING FROM CONSTRUCTION ACTIVITIES THAT ARE LOCATED WITHIN THE CLEAR ZONE SHALL BE PROPERLY PROTECTED. ALL TEMPORARY DEVICES SHALL BE NCHRP COMPLIANT AND SHALL BE FURNISHED IN ACCORDANCE WITH SECTION 621. PAYMENT FOR ENERGY ABSORPTION ATTENUATORS WILL BE MADE UNDER CONTRACT ITEM NO. 641.10.
6. IF TEMPORARY BARRIER IS USED, BARRIER ENDS FACING ONCOMING TRAFFIC SHALL BE TAPERED BEYOND THE CLEAR ZONE, OR PROTECTED WITH AN APPROVED END TREATMENT.
7. PAYMENT FOR INSTALLING, RESETTING IF NECESSARY, AND REMOVING ANY TEMPORARY TRAFFIC BARRIER SHALL BE PAID FOR UNDER CONTRACT ITEM 621.90 AND 621.95
8. PAYMENT FOR INSTALLING AND REMOVING ANY ENERGY ABSORPTION ATTENUATORS SHALL BE INCIDENTAL TO CONTRACT ITEM NO. 641.10. CONTRACTOR SHALL REFER TO VTRANS' APPROVED PRODUCTS LISTING FOR OPTIONS OF ENERGY ABSORPTION ATTENUATORS TO BE USED ON THE PROJECT.
9. PROPOSED CHANGES TO THE TRAFFIC CONTROL PLAN SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ROADWAY, TRAFFIC, AND SAFETY ENGINEER IN A SITE-SPECIFIC TRAFFIC CONTROL PLAN. THE ROADWAY, TRAFFIC, AND SAFETY ENGINEER SHALL APPROVE THIS PLAN PRIOR TO THE START OF CONSTRUCTION ACTIVITIES.
10. IF RAMP IS NARROWED TO 12 FT WIDTH DURING DAY, THE DEPT. OF MOTOR VEHICLES, OVERSIZE PERMITS DIV., MUST BE NOTIFIED FOR LIMITS OF TRAVEL.

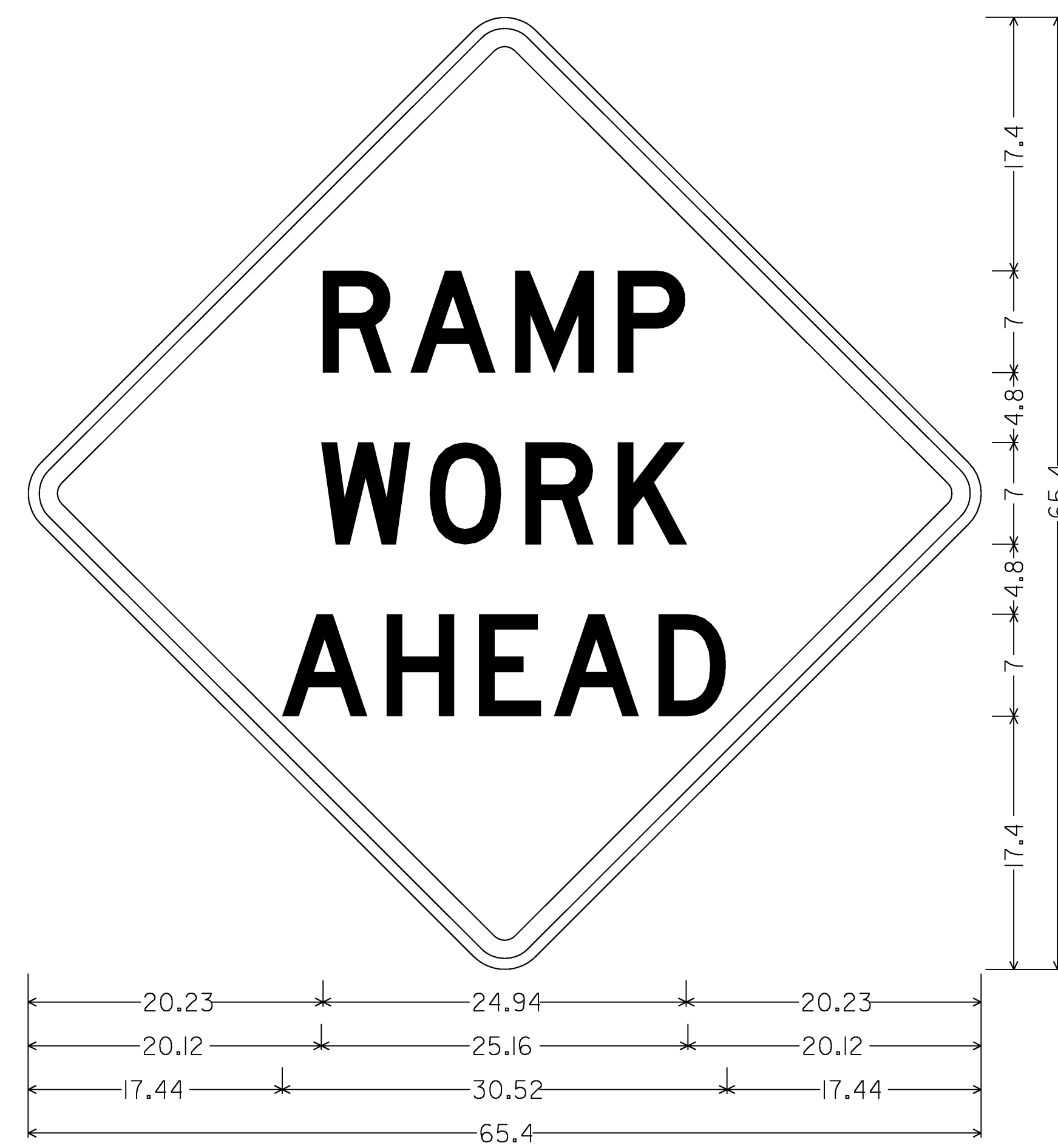
PROJECT NAME: ROCKINGHAM
PROJECT NUMBER: IM SCRP(5)

FILE NAME: d07a108Tc.dgn	PLOT DATE: 30-JUL-2008
PROJECT LEADER: K. UPMAL	DRAWN BY: T. GUAZZONI
DESIGNED BY: T. GUAZZONI	CHECKED BY: B. KIPP
TRAFFIC CONTROL GENERAL NOTES	SHEET 16 OF 17

TRAFFIC SIGN DETAIL SHEET



48.00" across sides 3.00" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
[RAMP] D; [WORK] D; [1/2 MILE] C;



48.00" across sides 3.00" Radius, 1.25" Border, 0.75" Indent, Black on Orange;
[RAMP] D; [WORK] D; [AHEAD] D;

PROJECT NAME:	ROCKINGHAM
PROJECT NUMBER:	IM SCRP(5)
FILE NAME:	d07a108Tc.dgn
PROJECT LEADER:	K. UPMAL
DESIGNED BY:	T. GUAZZONI
TRAFFIC SIGN DETAIL SHEET	
PLOT DATE:	21-AUG-2008
DRAWN BY:	T. GUAZZONI
CHECKED BY:	B. KIPP
SHEET 17	OF 17