MINNESOTA DEPARTMENT OF TRANSPORTATION
BLUE EARTH COUNTY DEPARTMENT OF PUBLIC WORKS

CONSTRUCTION PLANS FOR CSAH 12
BRIDGE RAMP GRADINGS & POND EXCAVATION

STATE PROJECT 07-612-19

BETWEEN CSAH 17 AND CSAH 3
FROM: A PT. 1375' N & 950' E OF THE SW. COR. SEC. 11-108-26
TO: A PT. 2840' N & 1520' E OF THE SW. COR. SEC. 11-108-26

AGREEMENT NO 98900
BLUE EARTH COUNTY
SP 0702 - 116A (TH 14 = 007)
STATE FUNDS
DISTRICT 7 (MANKATO)

GROSS LENGTH	1600.00	FEET	0.303	MILES
EXCEPTION LENGTH	180.00	FEET	0.034	MILES
NET LENGTH	1420.00	FEET	0.269	MILES

REF PT 135+00.203 TO 136+00.143

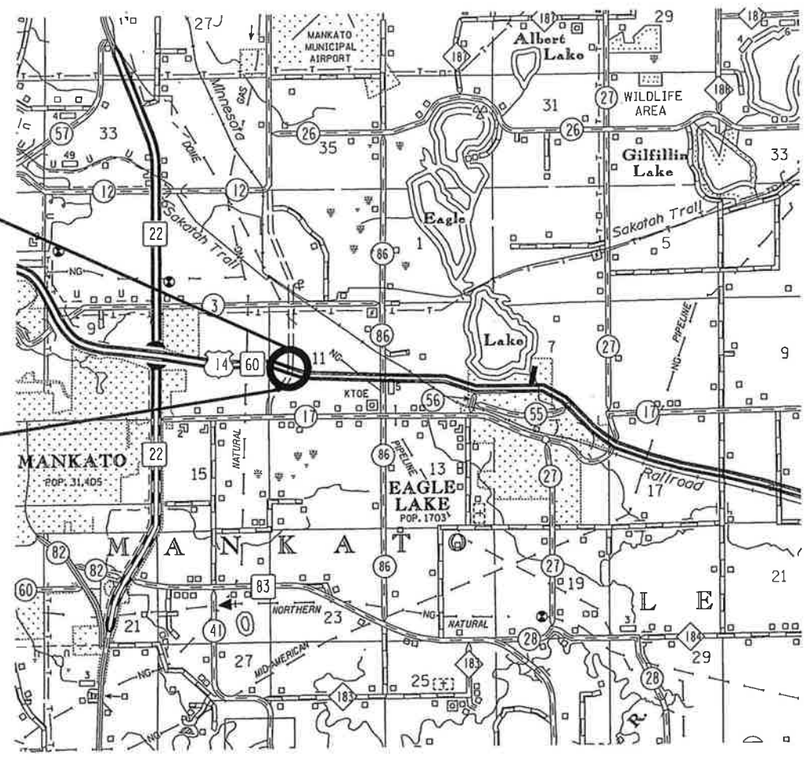
END SP 07-612-19

STA 83+00

EXCEPTION STA 76+10 TO 77+90

BEGIN SP 07-612-19

STA 67+00



R.26 W R 25 W

PROJECT LOCATION

BLUE EARTH COUNTY

CSAH 12 DESIGN DESIGNATION

ADT (CURRENT YEAR) 2011 - 0
ADT (FUTURE YEAR) 2031 - 24,200
(FROM MATAPS TRAFFIC STUDY)
ESAL 1,545,000
10 TON DESIGN
FUTURE FUCTIONAL CLASS MINOR ARTERIAL
R VALUE 10

DESIGN SPEED 45 MPH
BASED ON STOPPING SIGHT DISTANCE
HEIGHT OF EYE 3.5 - HEIGHT OF OBJECT 0.5
DESIGN SPEED NOT ACHIEVED AT :ROUNDABOUTS

MINN. PROJ. No. STPX 0711(249)

GOVERNING SPECIFICATIONS

THE 2005 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

INDEX OF SHEETS

SHEET No'S	1	TITLE
SHEET No'S	2	EST. QUANTITIES
SHEET No'S	3-4	TYPICAL SECTIONS
SHEET No'S	5-6	TRAFFIC CONTROL
SHEET No'S	7-14	DETAILS & TABULATIONS
SHEET No'S	15-17	PLAN & PROFILE
SHEET No'S	18-25	CONSTRUCTION
SHEET No'S	26-40	X-SECTIONS

THIS PLAN CONTAINS 40 SHEETS

SCALE

PLAN	100'	
PROFILE	100' HORIZ.	10' VERT.
INDEX MAP	1 MILE	
CROSS SECTIONS	10' HORIZ.	10' VERT.

UTILITIES

EXISTING UTILITY INFORMATION SHOWN ON THIS PLAN HAS BEEN PROVIDED BY THE UTILITY OWNER. THE CONTRACTOR SHALL FIELD VERIFY EXACT LOCATIONS PRIOR TO COMMENCING CONSTRUCTION AS REQUIRED BY STATE LAW. NOTIFY GOPHER STATE ONE-CALL AT 1-800-252-1166 OR 1-612-454-0002.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY LEVEL D. THIS QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38-02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

ONE CALL:	1-800-252-1166
ELECTRIC:	
EXCEL	1-507-625-5621
BENCO	1-507-387-7963
TELEPHONE:	
HICKORY TECH	1-507-387-1151
SPRINT	1-651-772-6714
VERIZON WIRELESS	1-507-385-2371
GAS:	
KINDER MORGAN	1-507-625-1411
GREATER MINNESOTA	1-507-934-3411
ALLIANCE PIPELINE	1-800-884-8811

ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH , IN THE CONSTRUCTION OF THIS PROJECT.

I HERE BY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

Alan Parsley — 22 April 11
COUNTY ENGINEER — DATE
BLUE EARTH COUNTY — LIC No. 14720

4/22/11
DIST. STATE AID ENG'R : REVIEWED FOR COMPLIANCE WITH STATE-AID RULES/POLICY — DATE

5/24/11
APPROVED FOR STATE AID & FEDERAL AID FUNDING: STATE AID ENGINEER — DATE

James M. Swanson — 4/22/11
RECOMMENDED FOR APPROVAL: TRANSPORTATION DISTRICT ENGINEER — DATE

John C. Stoger — 4/22/11
RECOMMENDED FOR APPROVAL: DISTRICT MATERIALS ENGINEER — DATE

4/22/11
RECOMMENDED FOR APPROVAL: DISTRICT TRAFFIC ENGINEER — DATE

5/31/11
FOR Tim R. Swanson — RECOMMENDED FOR APPROVAL: STATE PRE-LETTING ENGINEER — DATE NC

6/8/2011
RECOMMENDED FOR APPROVAL: DIRECTOR, OFFICE OF LAND MANAGEMENT — DATE

6/8/11
APPROVED: STATE DESIGN ENGINEER — DATE

SP 0702 - 116A (TH 14 = 007)
CSAH 12 SP 07-612-19 SHEET No. 1 OF 40 SHEETS

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY ON THIS PROJECT.

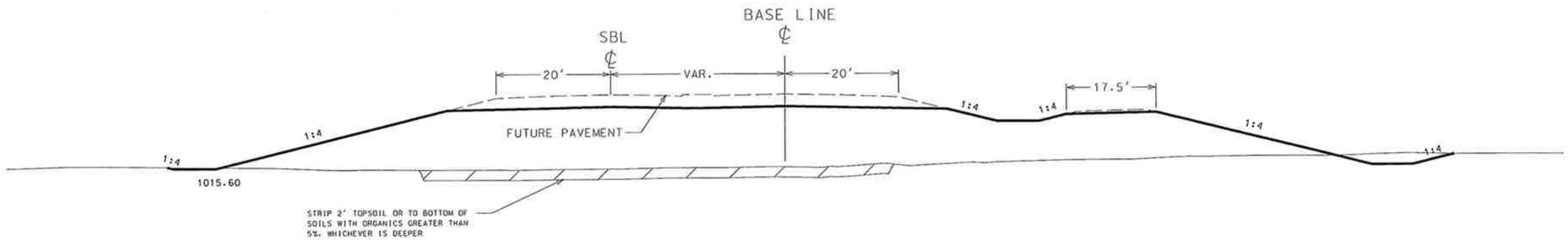
STANDARD PLATES

PLATE NO.	DESCRIPTION
3000 L	REINFORCED CONCRETE PIPE
3006 G	GASKET JOINT FOR R.C. PIPE
3014 J	REINFORCED CONCRETE PIPE ARCH
3040 F	CORRUGATED METAL PIPE CULVERT
3100 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE
3110 G	CONCRETE APRON FOR REINFORCED CONCRETE PIPE-ARCH
3123 J	METAL APRON FOR C.S. PIPE
3124 B	METAL APRON CONNECTION
3221 C	CORRUGATED STEEL PIPE COUPLING BAND
3133 C	RIPRAP AT RCP OUTLETS
3145 F	CONCRETE PIPE TIES (EYE BOLT TIE)
4010 H	CONCRETE SHORT CONE & ADJUSTING RING (SECTIONAL CONCRETE)
4011 E	PRECAST CONCRETE BASE
4020 J	MANHOLE OR CATCH BASIN
4026 A	CONCRETE ENCASED CONCRETE ADJUSTING RINGS
4143 E	STOOL GRATE & CONCRETE FRAME
4180 J	MANHOLE OR CATCH BASIN STEP
8000 I	STANDARD BARRICADES

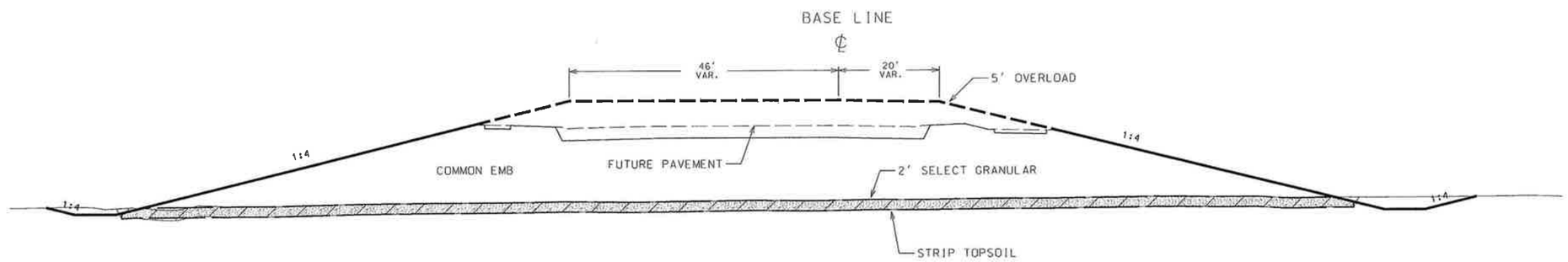
STATEMENT OF ESTIMATED QUANTITIES

PAGE	ITEM No.	ITEM	UNIT	TOTAL EST. QUANTITY	TOTAL FINAL QUANTITY
	2021.501	MOBILIZATION	LUMP SUM	1	
8	2105.602	SETTLEMENT PLATES	EACH	7	
8	2105.602	PIEZOMETER	EACH	9	
10	2105.603	WICK DRAIN	LIN. FT.	376442	
11	2106.605	SUBSOILING	ACRE	4	
7	2106.607	EXCAVATION - COMMON	CU. YD.	(P) 169005	
7	2106.607	COMMON EMBANKMENT (CV)	CU. YD.	(P) 288570	
7	2106.607	EXCAVATION - SPECIAL	CU. YD.	4056	
7	2106.607	SELECT GRANULAR EMBANKMENT MOD 5% (CV)	CU. YD.	(P) 28486	
22	2451.507	GRANULAR BEDDING (CV)	CU. YD.	15	
19	2501.511	18" CS PIPE CULVERT	LIN. FT.	72	
19	2501.515	18" GS PIPE APRON	EACH	2	
22	2501.515	18" RC PIPE APRON	EACH	1	
22	2501.515	24" RC PIPE APRON	EACH	2	
22	2501.525	28" SPAN RC PIPE - ARCH APRON	EACH	2	
22	2501.525	44" SPAN RC PIPE - ARCH APRON	EACH	1	
22	2503.541	18" RC PIPE SEWER , DESIGN 3006 CL-III	LIN. FT.	44	
22	2503.541	24" RC PIPE SEWER , DESIGN 3006 CL-III	LIN. FT.	410	
22	2503.603	28" SPAN RC PIPE-ARCH SEWER , DESIGN 3006 CL-IIA	LIN. FT.	6	
22	2503.603	44" SPAN RC PIPE-ARCH SEWER , DESIGN 3006 CL-IIA	LIN. FT.	4	
22	2506.501	CONSTRUCT DRAINAGE STRUCTURE, DESIGN 48" - 4020	LIN. FT.	12	
22	2506.501	CONSTRUCT DRAINAGE STRUCTURE, DESIGN 84" - 4020	LIN. FT.	7	
22	2506.516	CASTING ASSEMBLY	EACH	2	
23-24	2511.501	RANDOM RIPRAP CL-III	CU. YD.	34	
5	2563.601	TRAFFIC CONTROL	LUMP SUM	1	
11	2573.502	SILT FENCE, TYPE HEAVY DUTY	LIN. FT.	100	
11	2573.502	SILT FENCE, TYPE MACHINE SLICED	LIN. FT.	3600	
11	2573.512	TEMPORARY DITCH CHECK, TYPE 2	LIN. FT.	30	
11	2573.530	STORM DRAIN INLET PROTECTION	EACH	1	
11	2573.540	FILTER LOG, TYPE STRAW BIOROLL	LIN. FT.	500	
	2573.550	EROSION CONTROL SUPERVISOR	LUMP SUM	1	
11	2575.501	SEEDING	ACRE	33	
11	2575.502	SEED, MIXTURE 150	POUND	200	
11	2575.502	SEED, MIXTURE 250	POUND	1705	
11	2575.502	SEED, MIXTURE 310	POUND	269	
11	2575.511	MULCH MATERIAL TYPE 1	TON	65	
11	2575.519	DISC ANCHORING	ACRE	33	
11	2575.532	FERTILIZER TYPE 1	POUND	9673	
11	2575.560	HYDRAULIC SOIL STABILIZER TYPE 5	POUND	10000	

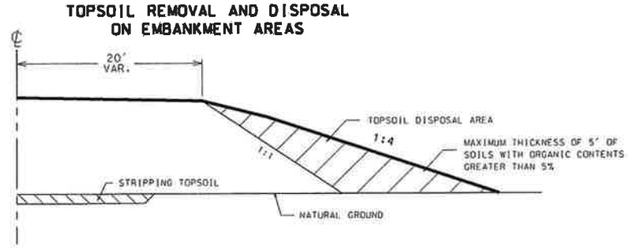
CSAH 12 GRADING SECTION
STA 67+00 TO 69+00



CSAH 12 GRADING SECTION
STA 69+00 TO 76+10
STA 81+00 TO 83+00
&
SOUTH RAMP
STA 500+00 TO 504+00



TOPSOIL REMOVAL AND DISPOSAL ON EMBANKMENT AREAS



CONSTRUCTION NOTES:

1. 2' MINIMUM SUBCUT. ADDITIONAL IF NEEDED TO REMOVE SOFT, COMPRESSIBLE ORGANIC MATERIAL. ENGINEER WILL DETERMINE LIMITS IN THE FIELD. PAID FOR AS EXCAVATION-COMMON.

   ADJUSTMENTS TO EXCAVATION-COMMON WILL BE MADE WITH FIELD MEASURED AS ACTUAL ELEVATIONS ARE DISCLOSED.

2. 3" OF TOPSOIL WILL BE REQUIRED ON ALL DISTURBED AREAS EXCEPT DITCH BOTTOMS. QUANTITIES WILL BE INCIDENTAL.

BORING #	STATION	LOCATION	ESTIMATED ORGANIC/TOPSOIL LAYER
B-15	74+00	113' RT	2
B-16	70+32	15' LT	5.5
B-17	66+37	9' LT	3.5

CSAH 12 TYPICAL

CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 APR. 11, 2011

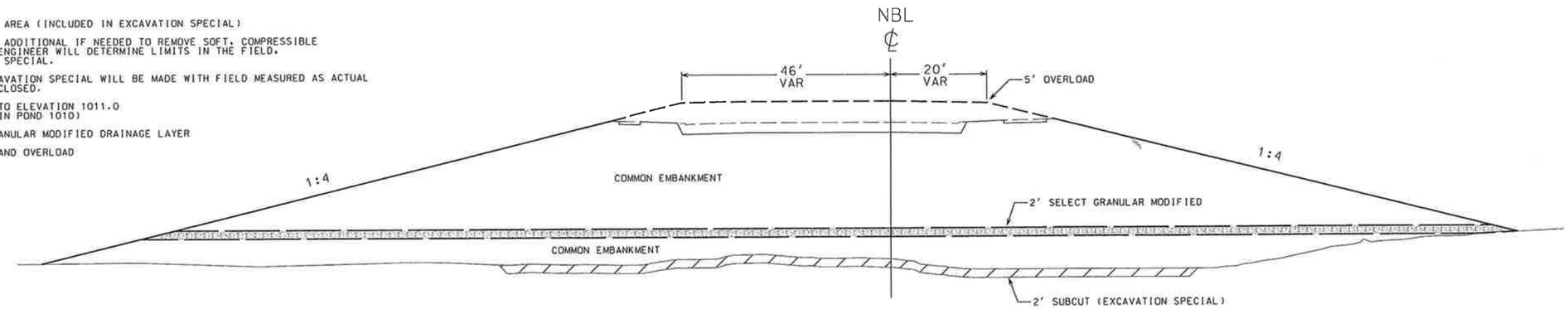
CONSTRUCTION NOTES:

STA 78+00 TO 81+00

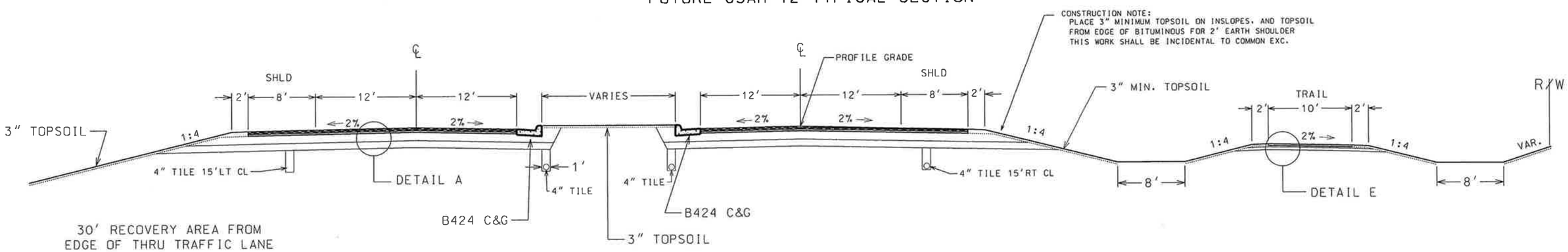
1. DEWATER EMBANKMENT AREA (INCLUDED IN EXCAVATION SPECIAL)
2. 2' MINIMUM SUBCUT. ADDITIONAL IF NEEDED TO REMOVE SOFT, COMPRESSIBLE ORGANIC MATERIAL. ENGINEER WILL DETERMINE LIMITS IN THE FIELD. PAID AS EXCAVATION SPECIAL.

   ADJUSTMENTS TO EXCAVATION SPECIAL WILL BE MADE WITH FIELD MEASURED AS ACTUAL ELEVATIONS ARE DISCLOSED.
3. PLACE COMMON EMB. TO ELEVATION 1011.0 (WATER ELEVATION IN POND 1010)
4. PLACE 2' SELECT GRANULAR MODIFIED DRAINAGE LAYER
5. PLACE COMMON EMB. AND OVERLOAD

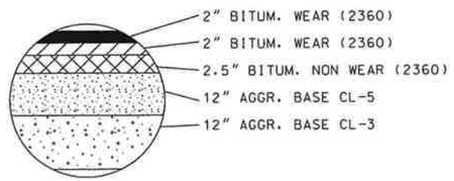
CSAH 12 GRADING SECTION
STA 78+00 TO 81+00



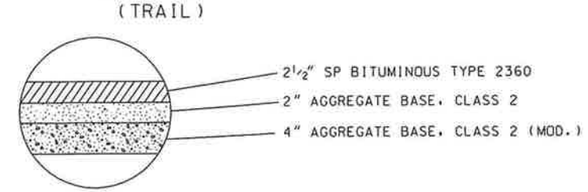
FUTURE CSAH 12 TYPICAL SECTION



DETAIL A



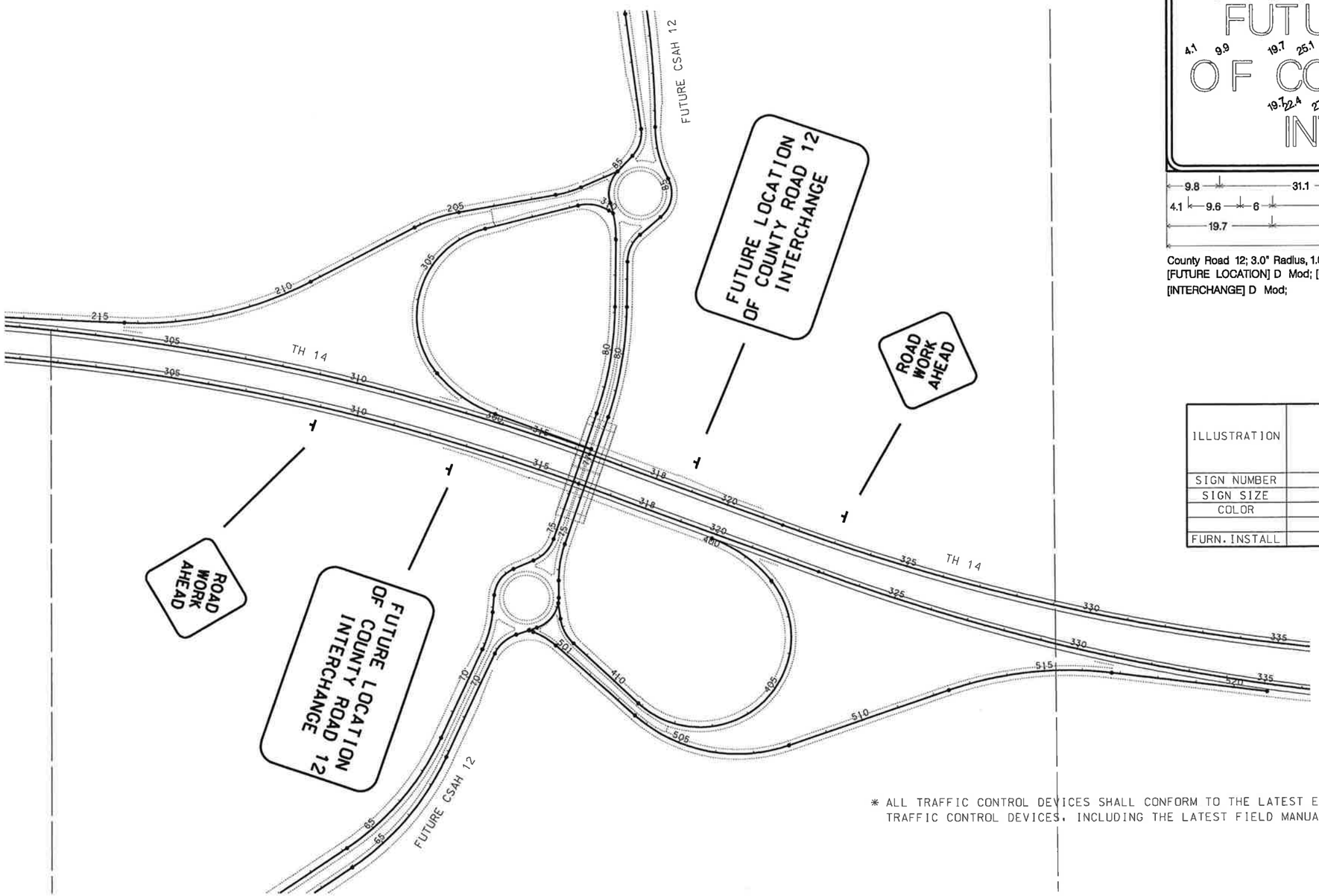
DETAIL E
(TRAIL)

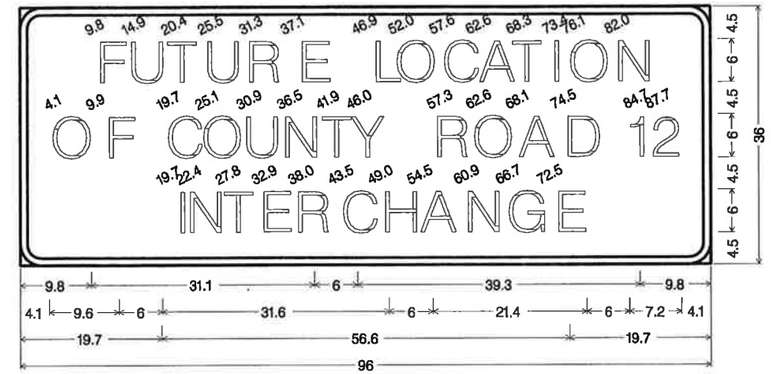


TYPICAL SECTIONS

CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 MAY 23, 2011

TRAFFIC CONTROL PLAN





County Road 12; 3.0" Radius, 1.0" Border, Black on Orange;
[FUTURE LOCATION] D Mod; [OF COUNTY ROAD 12] D Mod 90} spacing;
[INTERCHANGE] D Mod;

ILLUSTRATION		FUTURE LOCATION OF COUNTY ROAD 12 INTERCHANGE		ROAD WORK AHEAD
SIGN NUMBER				W20-1
SIGN SIZE		36" x 96"		48" x 48"
COLOR		BLACK ON ORANGE		BLACK ON ORANGE
FURN. INSTALL		2		2

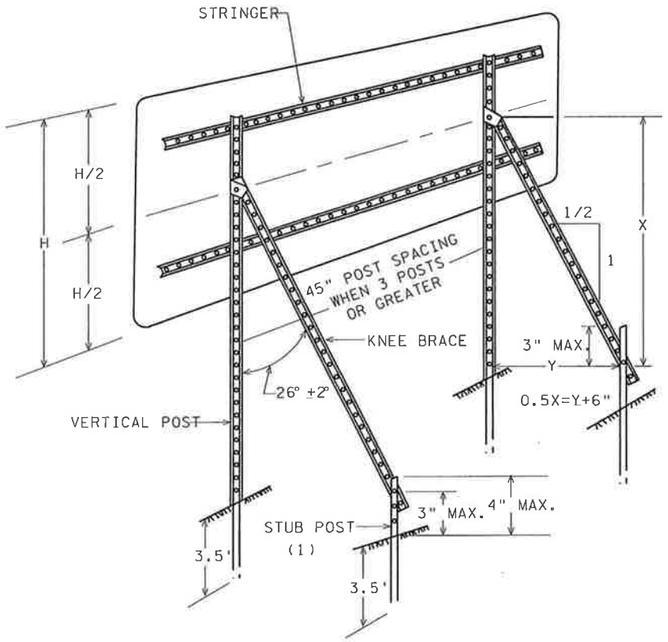
* ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE LATEST EDITION OF THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING THE LATEST FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

TRAFFIC CONTROL PLAN

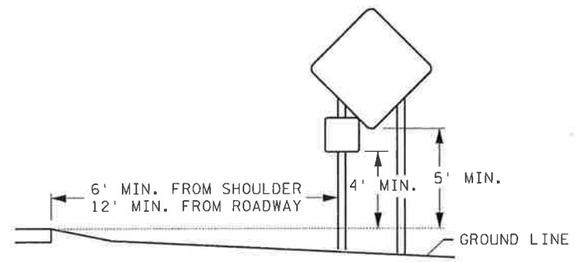
CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 APR. 11,2011

SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 5 OF 40 SHEETS

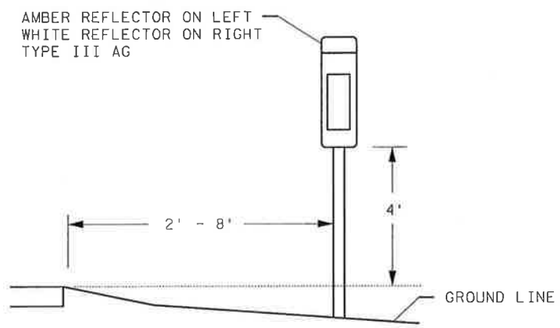
.../Traffic Control.dgn 5/23/2011 2:10:32 PM



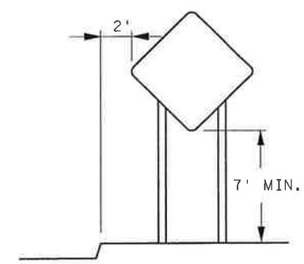
TYPICAL "A-FRAME" INSTALLATION
TYPE "D" SIGNS



TYPICAL RURAL DESIGN



DELINEATION MOUNTING



TYPICAL URBAN DESIGN

SIGN DATA

SIGNS TO BE INSTALLED ON DRIVEN U-POSTS SHALL BE INSTALLED IN ACCORDANCE WITH TABLE 1 OR TABLE 2 BELOW. SIGN PANELS SHALL BE INSTALLED ON SIGN STRUCTURES TO MEET THE MINIMUM 5 FEET DEPICTED ON THE TYPICAL RURAL DESIGN DETAIL, THE 7 FEET DEPICTED ON THE TYPICAL URBAN DESIGN DETAIL, OR MINIMUM 7 AND 9 FEET DEPICTED ON THE TYPICAL MOUNTING DETAIL ON THIS SHEET.

TABLE 1

STANDARD CONSTRUCTION SIGNS IN MN/DOT STANDARD SIGNS MANUAL

PANEL SIZE (IN.)	POSTS			
	NO. & TYPE	SPACING (IN.)	KNEE BRACES QUANT.	LENGTH (FT.)
24 x 24	2-U	18		13
30 x 24	2-U	18		13
36 x 30	2-U	24		13
36 x 36	2-U	18		14
42 x 36	2-U	30		14
48 x 48	2-U	30		15
60 x 60	2-U	42	1	16
72 x 72	2-U	42	2	17
96 x 54	2-U	54	2	16
168 x 132	4-U	48	4	20

GENERAL NOTES:
1. POST LENGTHS ARE APPROXIMATE AND INCLUDE EMBEDMENT, BUT DO NOT INCLUDE ADDITIONAL LENGTH REQUIRED FOR SPLICE.
2. SEE STANDARD SIGNS MANUAL FOR PUNCHING HOLES.

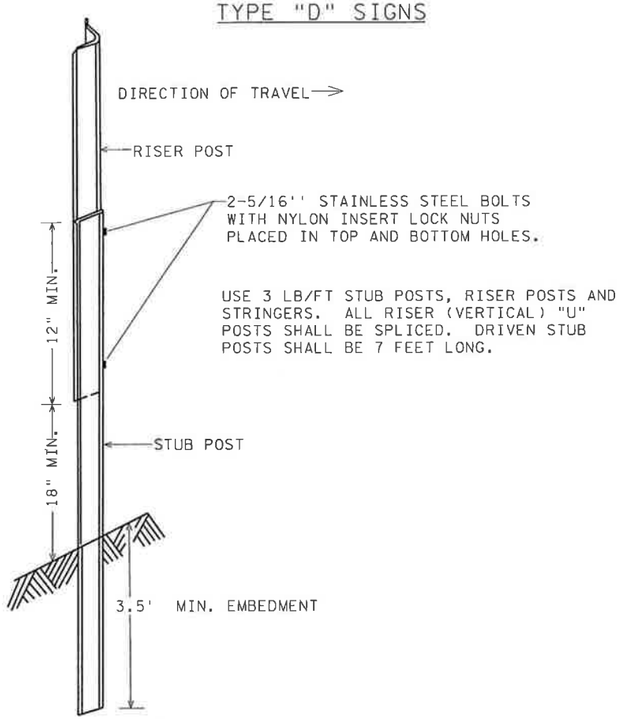
TABLE 2

SPECIAL DESIGN CONSTRUCTION SIGNS

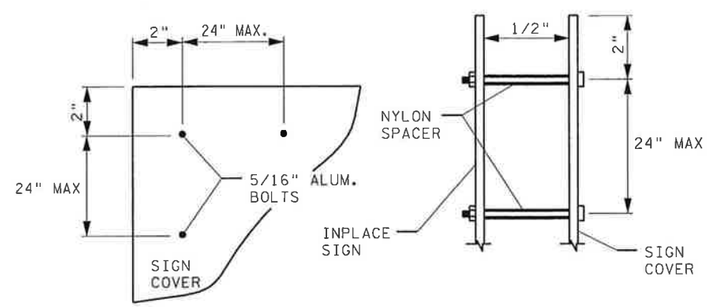
PANEL SIZE		POSTS			
LENGTH (IN.)	HEIGHT (IN.)	NO. & TYPE	SPACING (IN.)	KNEE BRACES QUANT.	LENGTH (FT.)
54 - 96	78	2-U	42	2	20
102 - 138	78	3-U	45	3	20
144 - 180	78	4-U	45	4	20

DESIGNER NOTE:

INCLUDE SPECIAL SIGN DETAILS IN THE TRAFFIC CONTROL PLAN IN TABLE TWO.

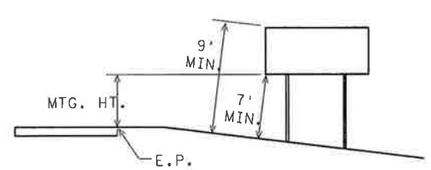


"U" POST SPLICE



REFER TO TRAFFIC ENGINEERING MANUAL CHAPTER 8 FOR MORE INFORMATION ON COVERING SIGNS

SIGN PANEL OVERLAY



TYPICAL MOUNTING

(1) OFFSET STUB POST 1' TOWARD ROADWAY RELATIVE TO VERTICAL POST.

NOTES:

FOR TEMPORARY CONSTRUCTION SIGN FRAMING, THE CONTRACTOR MAY USE GRADE 5 ZINC PLATED BOLTS FOR ALL BOLTED CONNECTIONS, EXCEPT FOR THE KNEE BRACE CONNECTION TO THE REAR STUB POST, WHICH SHALL UTILIZE A 5/16 INCH STAINLESS STEEL BOLT AND NYLON INSERT LOCK NUT. ADDITIONAL SIGN FRAMING DETAILS CAN BE FOUND IN THE TRAFFIC ENGINEERING MANUAL PART 6.

IF THE CONTRACTOR ELECTS TO USE SOME OTHER TYPE OF SIGN SUPPORT (OTHER THAN U-CHANNEL SIGN POSTS) FOR MOUNTING CONSTRUCTION SIGNS, DETAILS OF THE PROPOSED SIGN STRUCTURE SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO ORDERING THE SIGN STRUCTURE COMPONENTS. ANY SIGN STRUCTURE TO BE SUBMITTED TO THE ENGINEER SHALL BE AN FHWA ACCEPTED BREAKAWAY SIGN SUPPORT. SIGN STRUCTURE SHALL ALSO BE APPROVED FOR 90 MPH WIND LOAD.

GUIDE SIGNS SHOWN TO BE COVERED SHALL BE COVERED WITH THE SAME COLOR AS THE SIGN BACKGROUND. THE CONTRACTOR SHALL INSTALL COVERS OR ADDITIONAL SIGNS USING A MINIMUM 1/2" NYLON SPACER BETWEEN THE INPLACE SIGN AND THE COVERING MATERIAL. HOLES WILL BE DRILLED IN THE COVER AND THE INPLACE SIGN AND SHALL BE INSTALLED IN ACCORDANCE TO THE SIGN PANEL DETAIL. SPACERS ARE REQUIRED. MID-PANEL SPACING SHALL BE NO GREATER THAN 24".

TYPICAL TEMPORARY SIGN FRAMING AND INSTALLATION DETAILS

TRAFFIC CONTROL

N

SCALE FEET

CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER APR. 11, 2011

.../Grading 2011/mndot Posts.dgn 5/23/2011 2:01:06 PM

EARTHWORK BALANCE 1 SOUTH OF TH 14

	Exc Common		Select Gran mod 5%	Common Emb
	C.Y.		C.Y.	C.Y.
CSAH 12	987		18,221	140,547
STRIP TOPSOIL	20,803			
OVERLOAD				29,419
TURNER WEST POND	65,651			
TURNER EAST POND	39,232			
SOUTH LOOP POND	39,941			
TOTALS	166,614		18,221	169,966

EARTHWORK BALANCE 2 NORTH OF TH 14

	Exc Common	Exc Special	Select Gran mod 5%	Common Emb
	C.Y.	C.Y.	C.Y.	C.Y.
CSAH 12		4,056	10,265	108,425
STRIP TOPSOIL	2,391			
OVERLOAD				10,179
TOTALS	2,391	4,056	10,265	118,604

EARTHWORK QUANTITIES SUMMARY

	BALANCE 1 C.Y.	BALANCE 2 C.Y.	TOTAL C.Y.
EXCAVATION - COMMON	166,614	2,391	169,005
COMMON EMBANKMENT	169,966	118,604	288,570
EXCAVATION - SPECIAL		4,056	4,056
SELECT GRANULAR mod 5%	18,221	10,265	28,486

CSAH 12 - SOUTH OF TH 14

		Strip Topsoil		Common	Select Gran mod 5%	Overload	Reg Fill
		C.Y.		C.Y.	C.Y.	C.Y.	C.Y.
CSAH 12							
	67+00						
	68+00	727		87			1,595
	69+00	1,109		154	184	1,028	4,431
	70+00	1,553		123	1,548	2,069	7,178
	71+00	1,734		100	1,726	2,213	10,048
	71+50	965		36	950	1,157	6,175
	72+00	1,035		24	1,024	1,270	7,463
	72+50	1,135		9	1,130	2,292	9,016
	73+00	1,266		4	1,263	3,392	10,620
	73+50	1,355		1	1,350	3,305	12,192
	74+00	1,347			1,356	2,514	12,158
	74+50	1,228			1,241	1,657	10,649
	75+00	1,110			1,124	1,204	9,732
	75+62	1,377			1,694	1,650	12,498
	76+10	543			575	544	5,009
SOUTH RAMPS							
	501+00						
	502+00	1,617		116	1,615	2,124	10,238
	503+00	1,442		178	1,441	2,019	7,962
	504+00	1,260		155	0	982	3,583
		20,803		987	18,221	29,419	140,547

CSAH 12 - NORTH OF TH 14

	Strip Topsoil	Special	Common	Select Gran mod 5%	Overload	Reg Fill
	C.Y.	Exc	C.Y.	C.Y.	C.Y.	C.Y.
77+90						
78+38		302		590	530	6,818
79+00		782		1,518	1,369	18,405
79+50		637		1,211	1,104	15,247
80+00		637		1,185	1,104	14,587
80+50		636		1,150	1,104	13,876
81+00		636		1,122	1,104	12,469
81+50	426	426		1,098	1,104	10,301
82+00	1,042			1,043	1,104	8,320
82+50	923			924	1,104	6,170
83+00				424	552	2,232
	2,391	4,056		10,265	10,179	108,425

EXCAVATION QUANTITIES

P:\CSAH\12\17 to 3\Grading 2011\Excel\[Dirt-Balance-2106.xls]dirt

CERTIFIED BY Alan Forsberg LIC. NO. 14720 5/25/2011
ALAN FORSBERG PROFESSIONAL ENGINEER

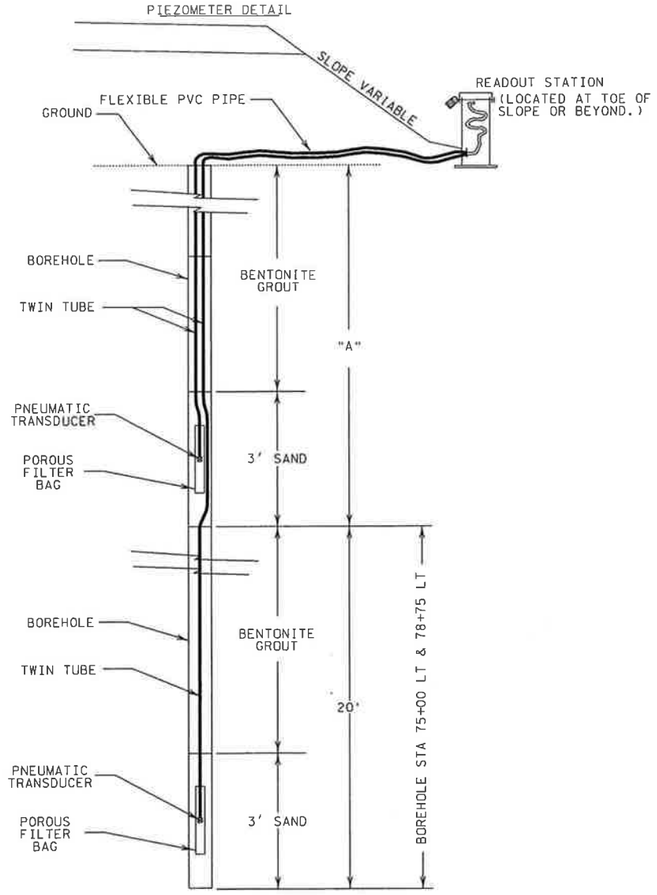
PNEUMATIC PIEZOMETERS

STATION	LOC.	"A" DEPTH	EACH
71+50	55' LT	25'	1
74+00	65' RT	25'	1
75+00	50' LT	20'	1
75+00	50' LT	40'	1
78+75	54" LT	20'	1
78+75	54' LT	40'	1
79+75	23' RT	25'	1
80+75	54' LT	25'	1
81+75	23' RT	25'	1
		TOTAL	9

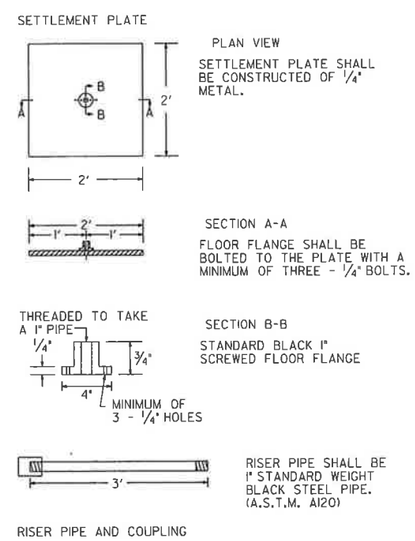
SETTLEMENT PLATES

STATION	LOC.	EACH
71+50	55' LT	1
74+00	65' RT	1
75+00	50' LT	1
78+75	54' LT	1
79+75	23' RT	1
80+75	54' LT	1
81+75	23' RT	1
TOTAL		7

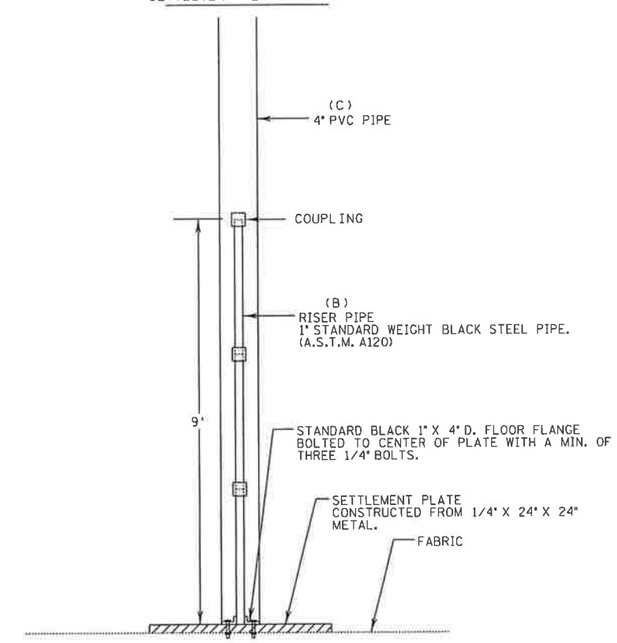
PIEZOMETER DETAIL



SETTLEMENT PLATE DETAILS



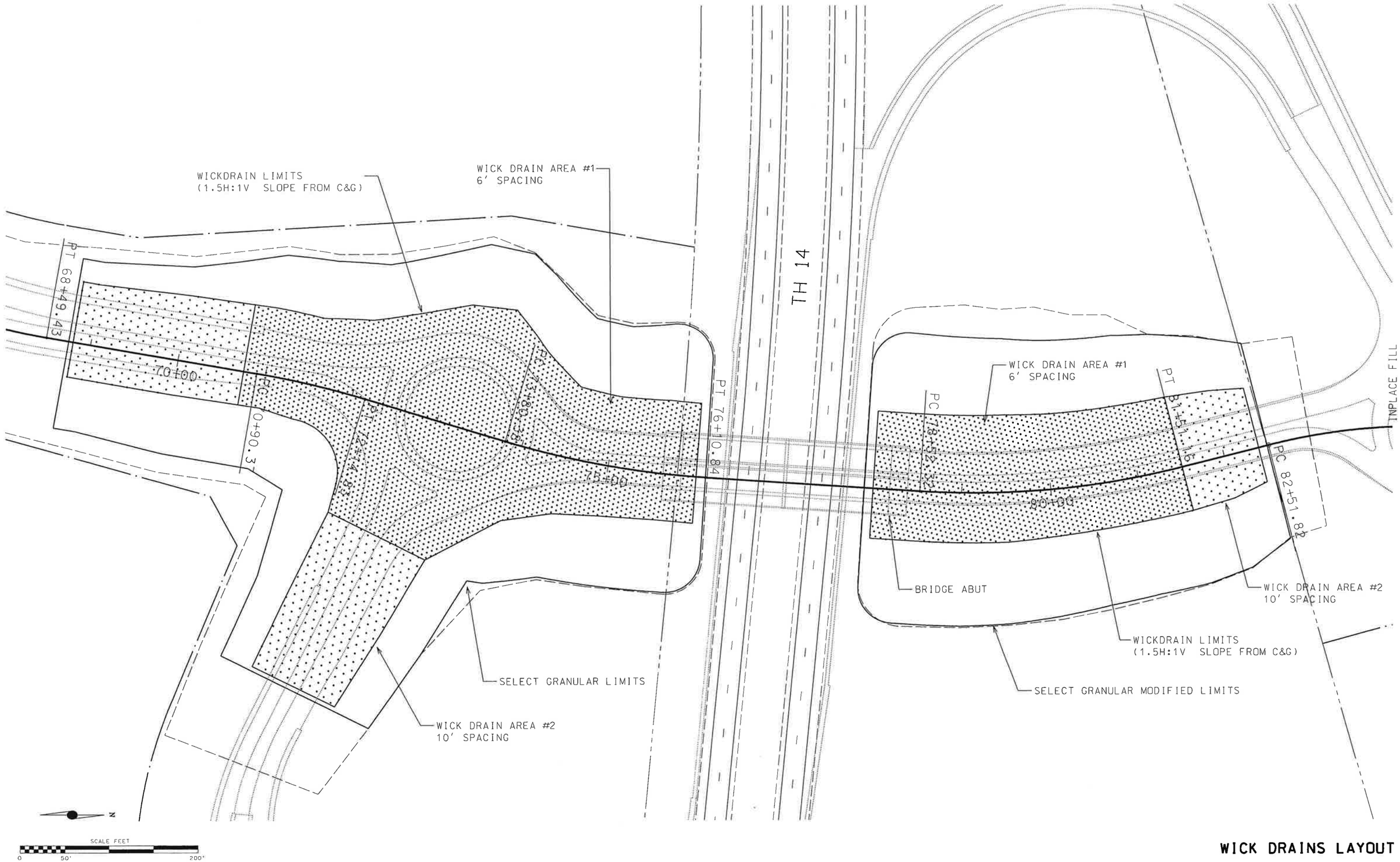
SETTLEMENT PLATE DETAIL



(B) RISER PIPE SECTIONS TO BE ADDED AS ELEV. OF FILL INCREASES TO A HIEGHT OF 9'. PAYMENT FOR ALL PIPE SECTIONS SHALL BE INCLUDED UNDER SETTLEMENT PLATES BY THE EACH AND NO ADDITIONAL COMPENSATION WILL BE MADE.

(C) ADDITIONAL 4" PVC SECTIONS WILL BE REQUIRED TO REACH THE TOP OF SURCHARGE. PAYMENT FOR ALL PIPE SECTIONS SHALL BE INCLUDED UNDER SETTLEMENT PLATES BY THE EACH AND NO ADDITIONAL COMPENSATION WILL BE MADE.

DETAIL SHEET



WICK DRAINS LAYOUT

CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER APR. 11, 2011

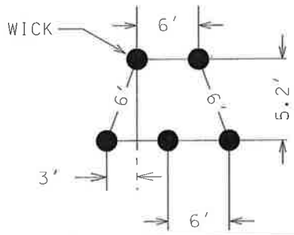
SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 9 OF 40 SHEETS

.../Grading 2011/CONST-WICKS-1.dgn 5/23/2011 8:45:02 AM

AREA 1

6' DIAGONAL WICK DRAIN LAYOUT

CSAH 12
STA 70+75 TO 76+00
STA 78+00 TO 81+50



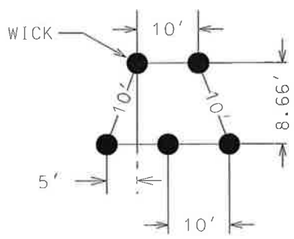
NOT TO SCALE

AREA 2

10' DIAGONAL WICK DRAIN LAYOUT

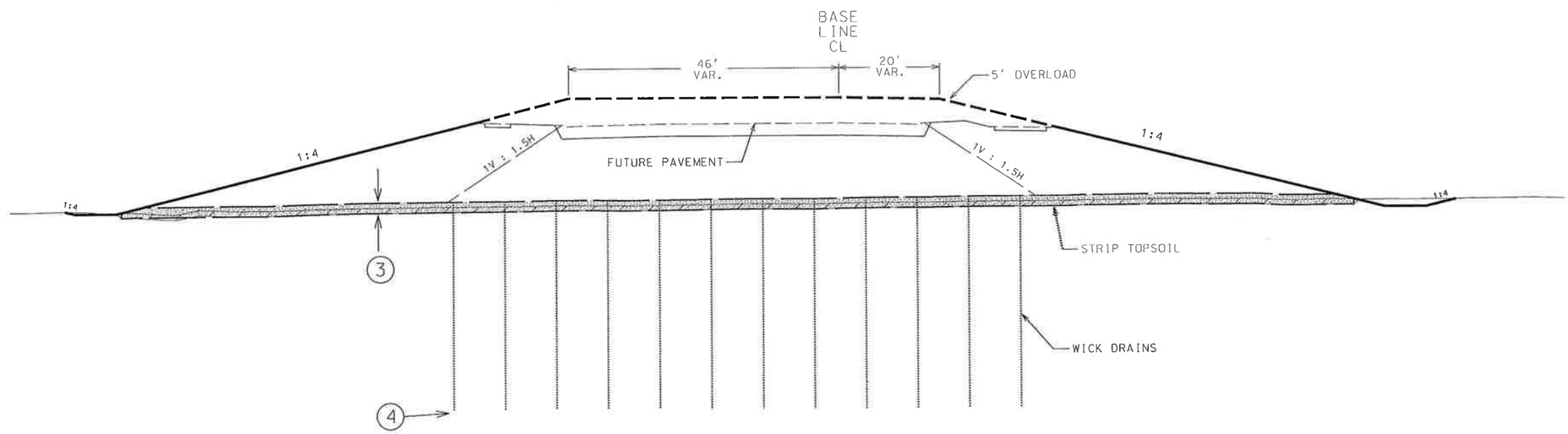
CSAH 12
STA 68+80 TO 70+75
STA 81+50 TO 82+40

SOUTH RAMP
STA 501+00 TO 503+00



NOT TO SCALE

WICK DRAIN SECTION



WICK DRAIN PLAN NOTES

1. SEE AREA 1 (6 FT WICK SPACING) & AREA 2 (10 FT WICK SPACING) ON WICK DRAIN PLAN SHEET FOR DETAILS.
2. PRE-DRILL WHERE REQUIRED THROUGH EXISTING CLAY FILL PLACED TO FILL EXISTING STORMWATER POND NORTH OF TH 14 AND OTHER REQUIRED AREAS PRIOR TO INSTALLING WICK DRAIN. PRE-DRILLING SHALL BE INCIDENTAL.
3. PLACE 2 FT SELECT GRANULAR (MODIFIED) FOR WORK PLATFORM.
4. AREA 1 AND AREA 2 DRAINS SHALL BE 71 FT DEEP. BASED ON FIELD CONDITIONS, ENGINEER MAY ADD OR DELETE DRAINS AND MODIFY DEPTHS IN THE FIELD NOT TO EXCEED 75 FT DEEP.
5. CONTRACTOR IS RESPONSIBLE FOR STAKING OF ALL WICK DRAINS WITHIN 6 INCHES OF PLAN LOCATION. BLUE EARTH COUNTY WILL PROVIDE CONSTRUCTION LIMITS AND THREE REFERENCE POINTS EVERY 100 FT.
6. CONTRACTOR SHALL COORDINATE WORK WITH UTILITY OWNERS.

WICK DRAINS

LOCATION	DIST LT	DIST RT	WIDTH	LENGTH FEET	AVE WIDTH	AREA SQ FT	WICK DRAIN SPACING	TOTAL WICK	WICK DRAINS 71' LONG LIN. FT.
CSAH 12									
STA 68 + 80	70	40	110						
STA 69 + 0	70	40	110	20	110	2200	10	25	1,775
STA 70 + 0	75	40	115	100	113	11250	10	130	9,230
STA 70 + 75	76	40	116	75	116	8663	10	100	7,100
STA 71 + 0	78	38	116	25	116	2900	6	93	6,603
STA 71 + 50	77	43	120	50	118	5900	6	189	13,419
STA 72 + 0	89	70	159	50	140	6975	6	224	15,904
STA 72 + 50	113	144	257	50	208	10400	6	333	23,643
STA 73 + 0	138	150	288	50	273	13625	6	437	31,027
STA 73 + 50	147	142	289	50	289	14425	6	462	32,802
STA 74 + 0	111	88	199	50	244	12200	6	391	27,761
STA 74 + 50	82	66	148	50	174	8675	6	278	19,738
STA 75 + 0	80	58	138	50	143	7150	6	229	16,259
STA 75 + 50	84	53	137	50	138	6875	6	220	15,620
STA 76 + 0	84	53	137	50	137	6850	6	220	15,620
STA 78 + 0	88	57	145						
STA 78 + 40	88	57	145	40	145	5800	6	186	13,206
STA 79 + 0	88	57	145	60	145	8700	6	279	19,809
STA 79 + 50	88	57	145	50	145	7250	6	232	16,472
STA 80 + 0	86	54	140	50	143	7125	6	228	16,188
STA 80 + 50	85	52	137	50	139	6925	6	222	15,762
STA 81 + 0	84	51	135	50	136	6800	6	218	15,478
STA 81 + 50	82	51	133	50	134	6700	6	215	15,265
STA 82 + 0	77	49	126	50	130	6475	10	75	5,325
STA 82 + 40	68	38	106	40	116	4640	10	54	3,834
SOUTH RAMP									
STA 501 + 0	83	39	122						
STA 502 + 0	76	38	114	100	118	11800	10	136	9,656
STA 503 + 0	67	37	104	100	109	10900	10	126	8,946
									376,442

WICK DRAIN DETAILS

CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 APR. 11, 2011

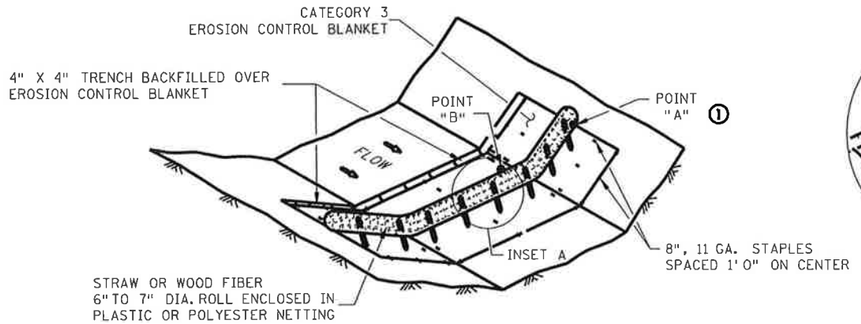
TURF ESTABLISHMENT

LOCATION		AREA SQ. F.T	SEEDING ACRE	SEEDING MIX # 150 LBS 40 LBS / ACRE	SEEDING MIX # 250 LBS 70 LBS / ACRE	SEEDING MIX # 310 LBS 82 LBS / ACRE	MULCH TYPE1 TON 2 TON / ACRE	DISK ANCHOR ACRES	FERTILIZER 20-10-20 LBS 350# / ACRE	HYDRAULIC SOIL STABILIZER TYPE 5 LBS EST @ 2100# / ACRE
CSAH 12										
50 + 0 TO 76 + 10	R/W	1,046,326	24.0		1,681.4		48.0	24.0	8,407.1	
TURNER WEST POND		74,115	1.7			139.5	3.4	1.7	595.5	
TURNER EAST POND		37,727	0.9			71.0	1.7	0.9	303.1	
SOUTH LOOP POND		22,667	0.5			42.7	1.0	0.5	182.1	
77 + 90 TO 83 + 0	CONST LIMITS	14,885	0.3		23.9		0.7	0.3	119.6	
77 + 90 TO 83 + 0	WATERS EDGE 20'	8,165	0.2			15.4	0.4	0.2	65.6	
TEMPORARY EROSION CONTROL	ESTIMATED - AS NEEDED									10,000
TEMPORARY EROSION CONTROL	ESTIMATED - AS NEEDED		5.0	200.0			10.0	5.0		
		CSAH 12 TOTALS	33	200	1,705	269	65	33	9,673	10,000

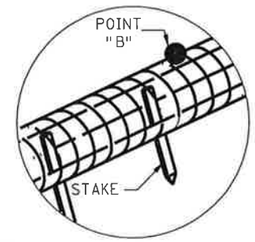
EROSION CONTROL

STATION TO STATION (1)	LOCATION (1)	AREA SQ. F.T	SUBSOILING ACRE	SILT FENCE HEAVY DUTY LIN. FT.	SILT FENCE MACHINE SLICED LIN. FT.	DITCH CHECK TYPE 2 LIN. FT.	INLET PROTECTION EACH	STRAW BIOROLL LIN. FT.
73 + 0	215 Lt					15		
74 + 0	225 Rt					15		
75 + 85	CL				450			
76 + 0	525' Rt TH 14 Culvert						1	
TURNER WEST POND	West side of Turner west pond			100	2200			500
TURNER WEST POND	EASMENT	138,643	3.2					
TURNER EAST POND	EASMENT	38,288	0.9					
78 + 0 TO 83 + 0	TOE SLOPE LT				425			
78 + 0 TO 83 + 0	TOE SLOPE RT				525			
	CSAH 12 TOTALS		4	100	3,600	30	1	500

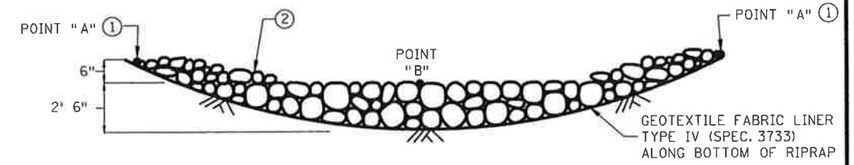
(1) STATION AND LOCATIONS ARE TO BE USED AS A GUIDE
VERIFY QUANTITIES & LOCATIONS IN THE FIELD.



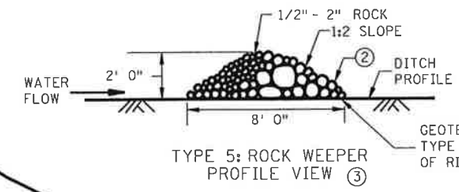
TYPE 3: BIOROLL BLANKET SYSTEM DITCH CHECK



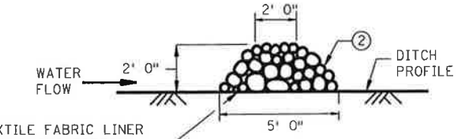
INSET A



CROSS SECTION (ROCK WEEPER AND ROCK CHECK)



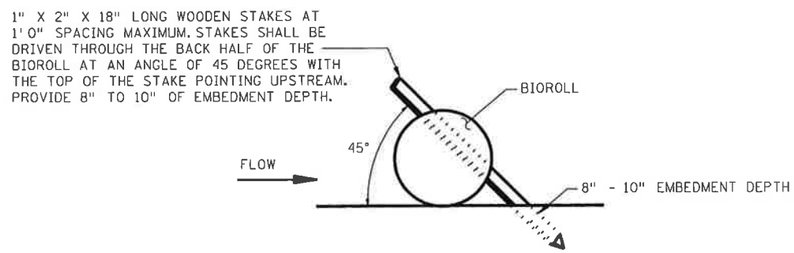
TYPE 5: ROCK WEEPER
PROFILE VIEW ③



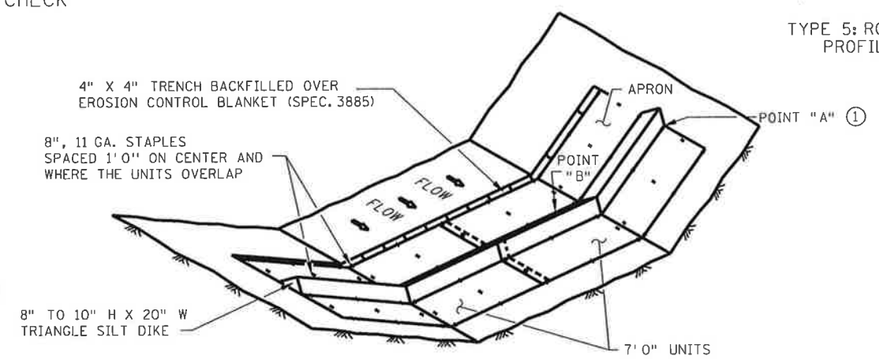
TYPE 7: ROCK CHECK
PROFILE VIEW

TYPE 5: ROCK WEEPER AND
TYPE 7: ROCK CHECK DITCH CHECKS ④

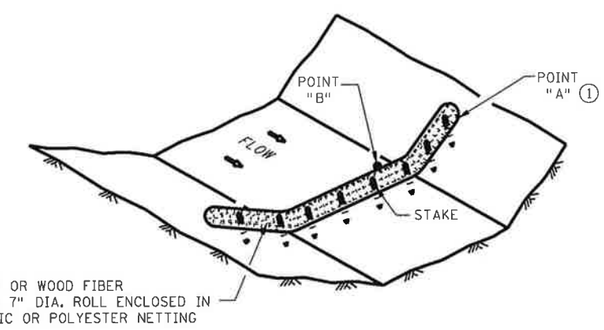
USE ON ROUGH GRADED AREAS



BIOROLL STAKING DETAIL

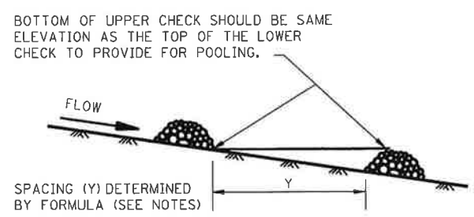


TYPE 6: GEOTEXTILE TRIANGULAR DIKE DITCH CHECK

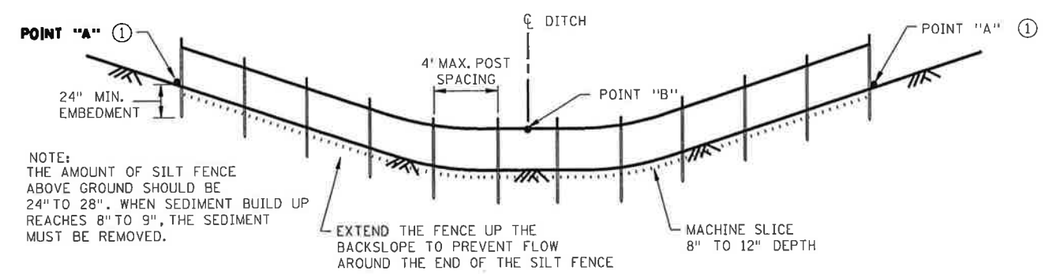


TYPE 2: BIOROLL DITCH CHECK

USE ON ROUGH GRADED AREAS



DITCH CHECK SPACING ④



TYPE 1: SLICED IN SILT FENCE DITCH CHECK

NOTES:

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT)}}{\text{\% CHANNEL SLOPE}} \times 100$$

① POINT "A" MUST BE A MINIMUM OF 6 INCHES HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

② CLASS I - IV RIPRAP (SPEC. 3601) WITH GEOTEXTILE FABRIC LINER, TYPE IV (SPEC. 3733).

③ THE ROCK WEEPER FILTERS SEDIMENT OUT OF THE WATER BETTER THAN THE OTHER DITCH CHECKS. THE ROCK WEEPER COULD BE USED AS A PERMANENT WATER FILTERING FEATURE.

④ PERMANENT ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE WILL NEED TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

GENERAL DESIGN GUIDELINES						
DITCH CHECK TYPE	SILT FENCE	BIOROLL	BIOROLL BLANKET	TRIANGULAR DIKE	ROCK WEEPER	ROCK CHECK
STORM FREQUENCY: MAX. FLOW VELOCITY: MAX. DITCH GRADE: MAX. DRAINAGE AREA:	2 YR. - 24 HR. < 1 FT./SECOND 0% - 0.5% 1 ACRE	2 YR. - 24 HR. 1.5 FT./SECOND 1.5% - 3% 2 ACRE	2 YR. - 24 HR. 4.5 FT./SECOND 1.5% - 3% 2 ACRE	2 YR. - 24 HR. 1.5 FT./SECOND 1.5% - 2.0% 4 ACRE	5 YR. - 24 HR. 12 FT./SECOND 3% - 5% 4+ ACRE	5 YR. - 24 HR. 12 FT./SECOND 3% - 5% 4+ ACRE

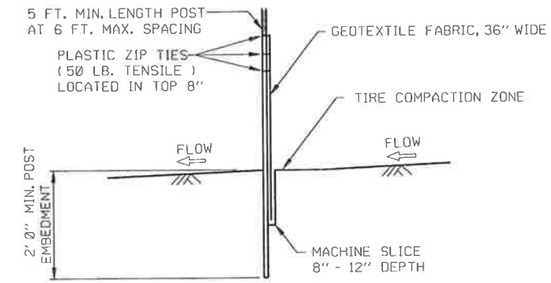
STANDARD SHEET NO.
5-297.405 (3 OF 4)
STANDARD APPROVED:
SEPTEMBER 27, 2006

TEMPORARY SEDIMENT CONTROL
DITCH CHECK/BARRIER

.../Grading 2011/s4053i06_spn.dgn 5/23/2011 8:57:18 AM

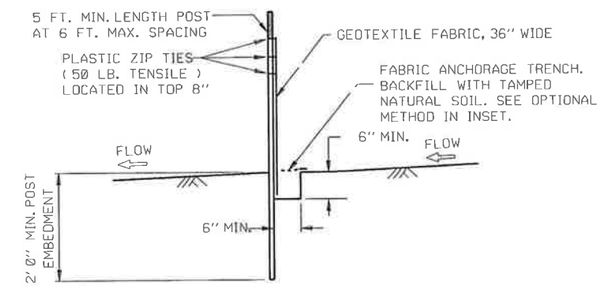
SUMMARY OF IMPERVIOUS & PERVIOUS
NPDES PERMIT

DESCRIPTION	Disturbed area	Before Construction Impervious	Before Construction Pervious	After Construction Impervious	After Construction Pervious
67+00 to 76+10	783,440	0	783,440	0	783,440
77+90 to 83+00	159,800	0	159,800	0	159,800
TURNER WEST POND	273,685	0	273,685	0	273,685
TURNER EAST POND	99,211	0	99,211	0	99,211
Total Sq. Ft.	1,316,136	0	1,316,136	0	1,316,136
Acres	**30.2**	**0.0**	**30.2**	**0.0**	**30.2**



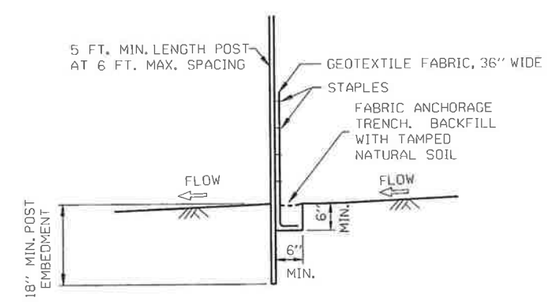
SILT FENCE, MACHINE SLICED

DESIGN GUIDELINES:
TO PROTECT AREAS FROM SHEET FLOW.
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



SILT FENCE, HEAVY DUTY
(HAND INSTALLED)

DESIGN GUIDELINES:
TO PROTECT AREAS FROM SHEET FLOW.
MAXIMUM CONTRIBUTING AREA: 1 ACRE.



SILT FENCE, PREASSEMBLED

DESIGN GUIDELINES:
TO PROTECT AREAS FROM SHEET FLOW.
MAXIMUM CONTRIBUTING AREA: 1 ACRE.

TEMPORARY EROSION CONTROL

CERTIFIED BY Alan Forsberg ALAN FORSBERG LIC. NO. 14720 PROFESSIONAL ENGINEER APR. 11, 2011

ALIGNMENT DATA

HARN Geodetic postion NAD 83 (1996)

PI #		PI STA	A		Curve	Tan	Radius	LC	SUPER	NORTHING	EASTING	AZ	DISTANCE
CSAH 12 - SURVEY BASE LINE													
BOP	PI	49+32.85								216431.97	588625.88	NW0^00'00"	685.71
	PC	50+39.02								216538.14	588625.88		
1	PI	56+18.56	55^56'24"	L	5^15'	579.55	1091.35	1065.52	5.3%	217117.68	588625.88	NE55^56'24"	1135.28
	PT	61+04.54								217442.26	589106.01		
	PC	64+61.33								217642.09	589401.59		
2	PI	66+60.27	31^2'52"	L	8	198.94	716.2	388.1	6.0%	217753.51	589566.4	NE24^53'32"	502.19
	PT	68+49.43								217933.97	589650.14		
	PC	70+90.37								218152.52	589751.56		
3	PI	71+52.68	7^7'52"	R	5^43'55"	62.31	1000	124.46	(1)	218209.05	589777.78	NE32^01'24"	343.6
	PT	72+14.83								218261.88	589810.82		
	PC	73+80.38								218402.24	589898.61		
4	PI	74+96.12	13^12'14"	L	5^43'55"	115.74	1000	230.45	(1)	218500.37	589959.98	NE18^49'09"	507.89
	PT	76+10.84								218609.92	589997.32		
	PC	78+52.32								218838.490	590075.210		
5	PI	80+02.98	18^1'26"	L	6^1'52"	150.67	950	298.85	(1)	218981.100	590123.820	NE 0^47'38"	356.340
	PT	81+51.16								219131.760	590125.910		
	PC	82+51.82								219232.410	590127.300		
6	PI	83+56.84	17^3'48"	R	8^11'6"	105.01	700.00	208.47	(1)	219337.410	590128.760	NE17^51'29"	252.400
	PT	84+60.29								219437.360	590160.960		
	PC	84+78.27								219454.470	590166.470		
7	PI	86+07.68	20^56'53"	L	8^11'6"	129.41	700.00	255.93	(1)	219577.650	590206.160	NW3^5'24"	665.270
	PT	87+34.20								219706.870	590199.180		
	PC	87+52.77								219725.410	590198.180		
8	PI	92+70.06	24^49'48"	L	22^26'23"	517.29	2349.83	1018.33	3.5%	220241.950	590170.300	NW27^55'11"	1193.030
	PT	97+71.10								220699.020	589928.090		
	PC	102+11.87								221088.480	589721.710		
9	PI	104+46.85	20^54'47"	R	4^30'	234.98	1273.24	464.73	4.9%	221296.111	589611.681	NW7^00'25"	828.360
	PT	106+76.60								221529.340	589583.020		
	PC	109+08.37								221759.37	589554.74		
10	PI	112+69.98	3^36'54"	L	0^30'	361.61	11459.16	722.99	NC	222118.284	589510.63	NW10^37'19"	602.69
	PT	116+31.35								222473.7	589443.98		
	PC	116+31.35								222473.7	589443.98		
11	PI	118+72.43	3^36'54"	R	0^45'	241.08	7639.44	481.99	2%	222710.646	589399.539	NW7^00'24"	241.08
	PT	121+13.35								222949.92	589370.13		
EOP	PI	121+13.35								222949.922	589370.131		
SOUTH RAMP													
BOP		500+00.00								218270.79	589866.51	SE68^11'22"	47.28
	PC	500+12.40								218266.18	589878.02		
1	PI	500+47.28	19^47'21"	R	28^38'52"	34.89	200.00	69.08	(2)	218253.22	589910.41	SE48^24'01"	555.10
	PT	500+81.47								218230.06	589936.49		
	PC	503+62.16								218043.71	590146.39		
2	PI	506+01.68	60^40'45"	L	14^	239.53	409.26	433.42	5.9%	217884.68	590325.51	NE70^55'14"	907.70
	PT	507+95.58								217962.97	590551.88		
	PC	512+42.00								218108.9	590973.78		
3	PI	514+63.75	26^08'46"	R	6^	221.75	954.93	435.77	5.9%	218181.39	591183.34	SE82^56'00"	631.77
	PT	516+77.77								218154.11	591403.4		
EOP	PI	520+87.79								218103.66	591810.31		

(1) BASE LINE CENTERLINE THRU ROUNDABOUT (NOT LANE CENTERLINE)

(2) IN ROUNDABOUT

PLAN SYMBOLS

STATE LINE
COUNTY LINE
TOWNSHIP OR RANGE LINE
SECTION LINE
QUARTER LINE
SIXTEENTH LINE
SLOPE EASEMENT
RIGHT OF WAY LINE
PRESENT RIGHT OF WAY LINE
CONTROLLED ACCESS
CORPORATE OR CITY LIMITS
PROPERTY LINE
TEMPORARY EASEMENT
RAILROAD RIGHT OF WAY
ROADWAY CENTERLINE
RAILROAD
RIVER OR CREEK
DRAINAGE DITCH
BRIDGE
CULVERT
DRAIN TILE
CAST IRON MONUMENT
CONCRETE OR STONE MONUMENT
MARSH OR SWAMP
WOODS OR BRUSH
DECIDUOUS TREE
EVERGREEN TREE
HEDGE
BARBED WIRE FENCE
CHAIN LINK FENCE — XC
WOVEN WIRE FENCE — XW
GUARDRAIL (CABLE)
GUARDRAIL (PLATE BEAM)
RETAINING WALL
CATCH BASIN — CB
MANHOLE — MH

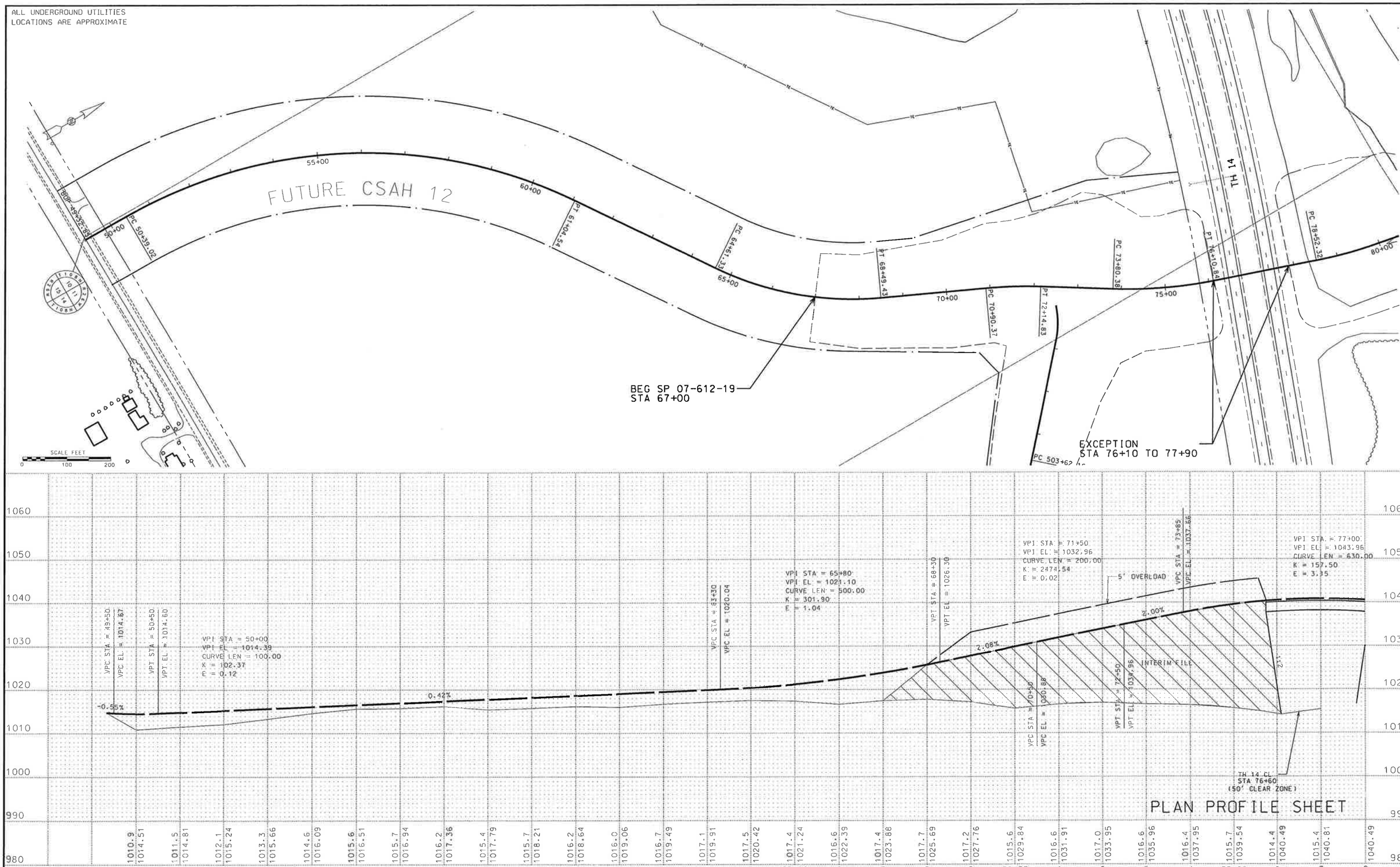
UTILITY SYMBOLS

POWER POLE LINE
BURIED ELECTRIC CABLE — P-BUR
ELECTRICAL CABLE IN CONDUIT — P
STEEL TOWER
ANCHOR
HANDHOLE — HH
GAS MAIN — G
GAS VALVE
SANITARY SEWER — 18" SAN
STORM SEWER — 18" ST
TELEPHONE POLE
BURIED TELEPHONE CABLE — T-BUR
TELEPHONE CABLE IN CONDUIT — T
FIRE HYDRANT
WATER MAIN
WATER VALVE
STREET LIGHT

P:\CSAH\12\17 to 3\Grading 2011\Excel\[Allgnment.xls]Sheet1

CERTIFIED BY Alan Forsberg LIC. NO. 14720 APRIL 8, 2011

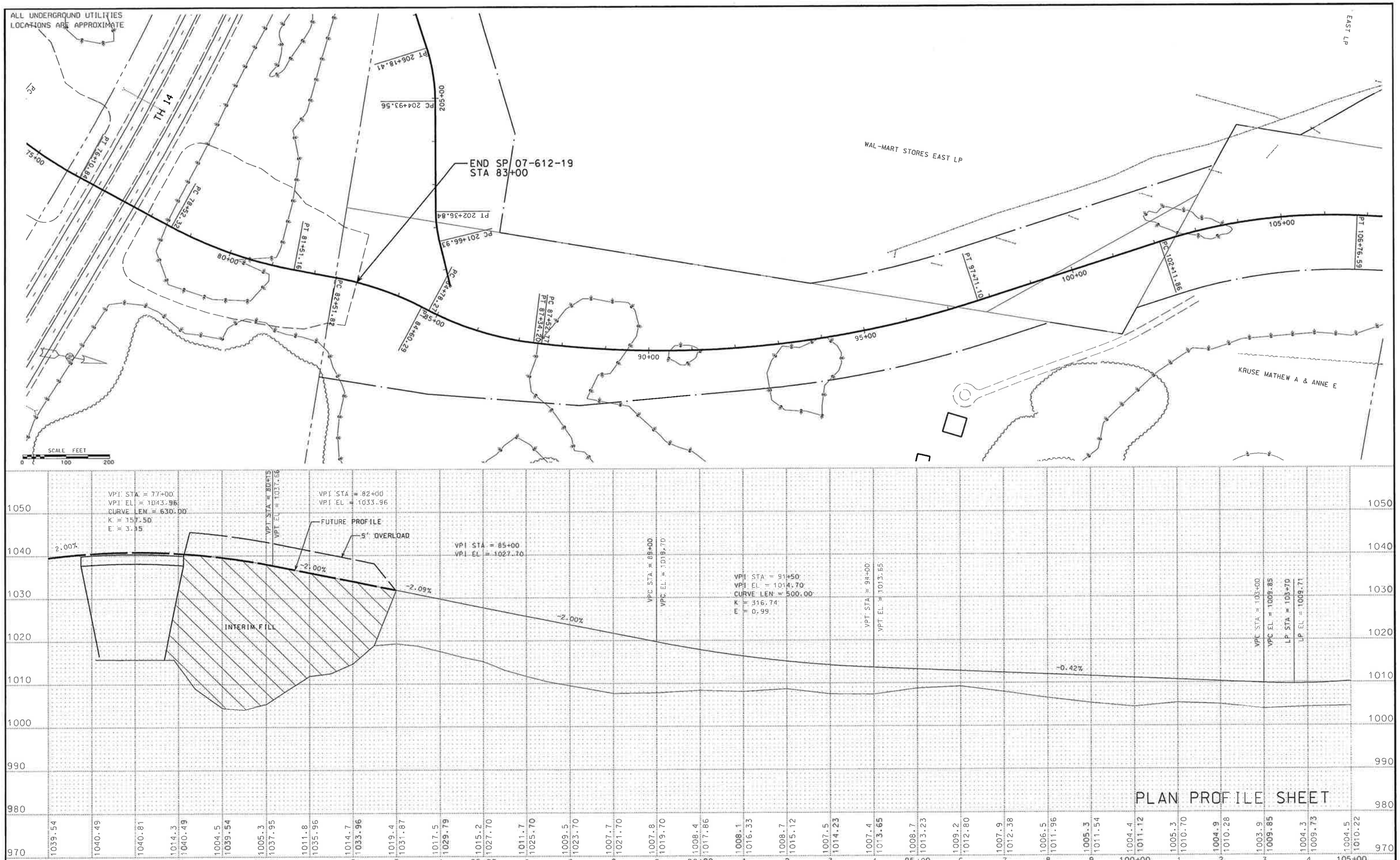
ALL UNDERGROUND UTILITIES
LOCATIONS ARE APPROXIMATE



CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 APR. 11, 2011

SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 15 OF 40 SHEETS

Plan-Profile1.dgn 5/25/2011 1:14:37 PM

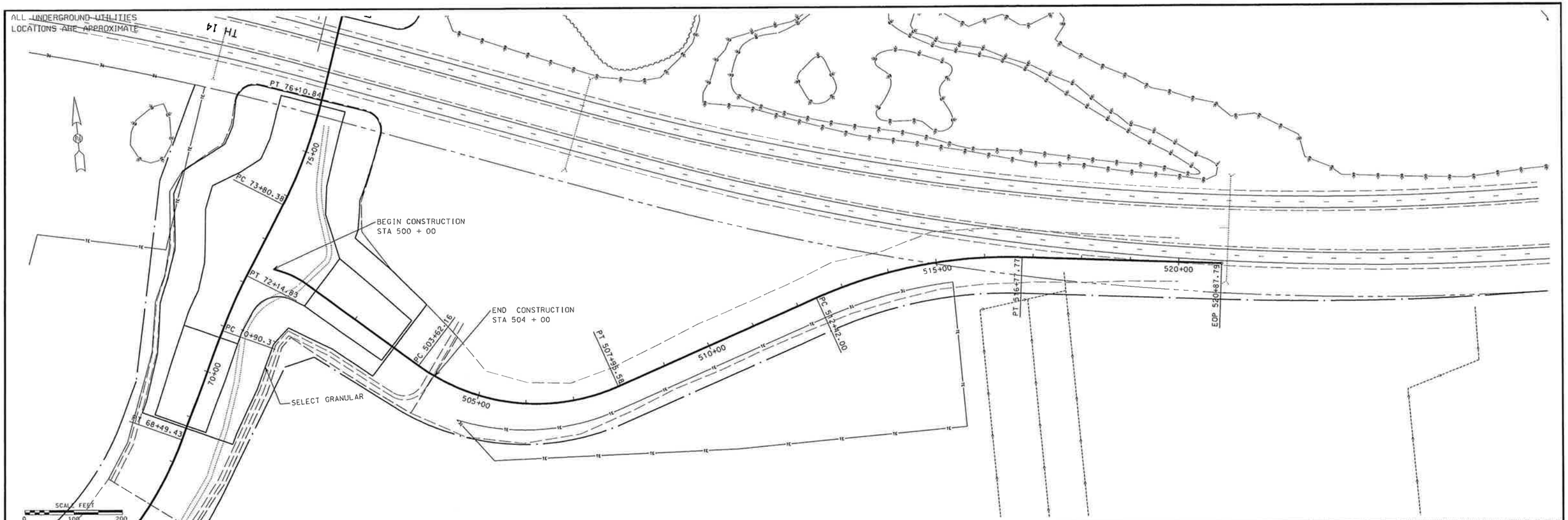


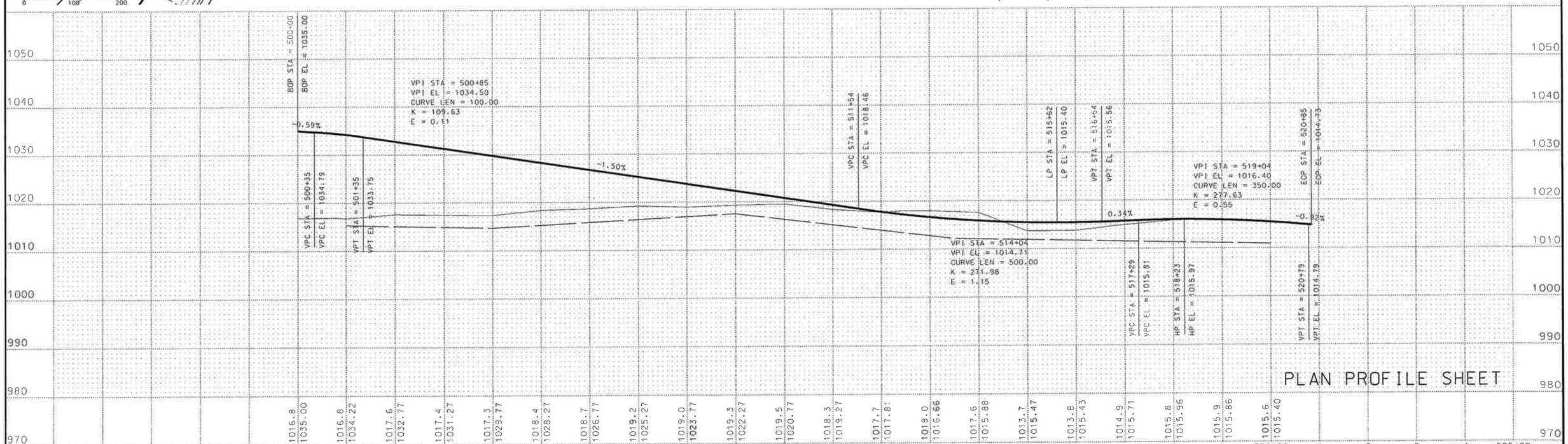
CERTIFIED BY Alan Forsling PROFESSIONAL ENGINEER LIC. NO. 14720 APR. 11 2011

SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 16 OF 40 SHEETS

.../Grading 2011/Plan-Profile2.dgn 5/23/2011 9:22:17 AM

ALL UNDERGROUND UTILITIES LOCATIONS ARE APPROXIMATE





PLAN PROFILE SHEET

CERTIFIED BY Alan Forsberg PROFESSIONAL ENGINEER LIC. NO. 14720 APR. 11 2011

SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 17 OF 40 SHEETS

.../Grading 2011/Plan-Profile3.dgn 5/23/2011 9:29:47 AM

END SP 07-612-19
STA 83+00

SELECT GRANULAR

EXCEPTION
STA 76+10 TO 77+90

TURNER
WEST POND

988 BOTTOM

BEG SP 07-612-19
STA 67+00

SELECT GRANULAR

Proposed Pond
39,941 Cu. Yd. Pond Exc
SOUTH LOOP
POND
1002 BOTTOM

F&I: TEMPORARY PIPE
72 LF 18 CS
2 EA 18" GS APRONS

TURNER
EAST POND
1002 BOTTOM

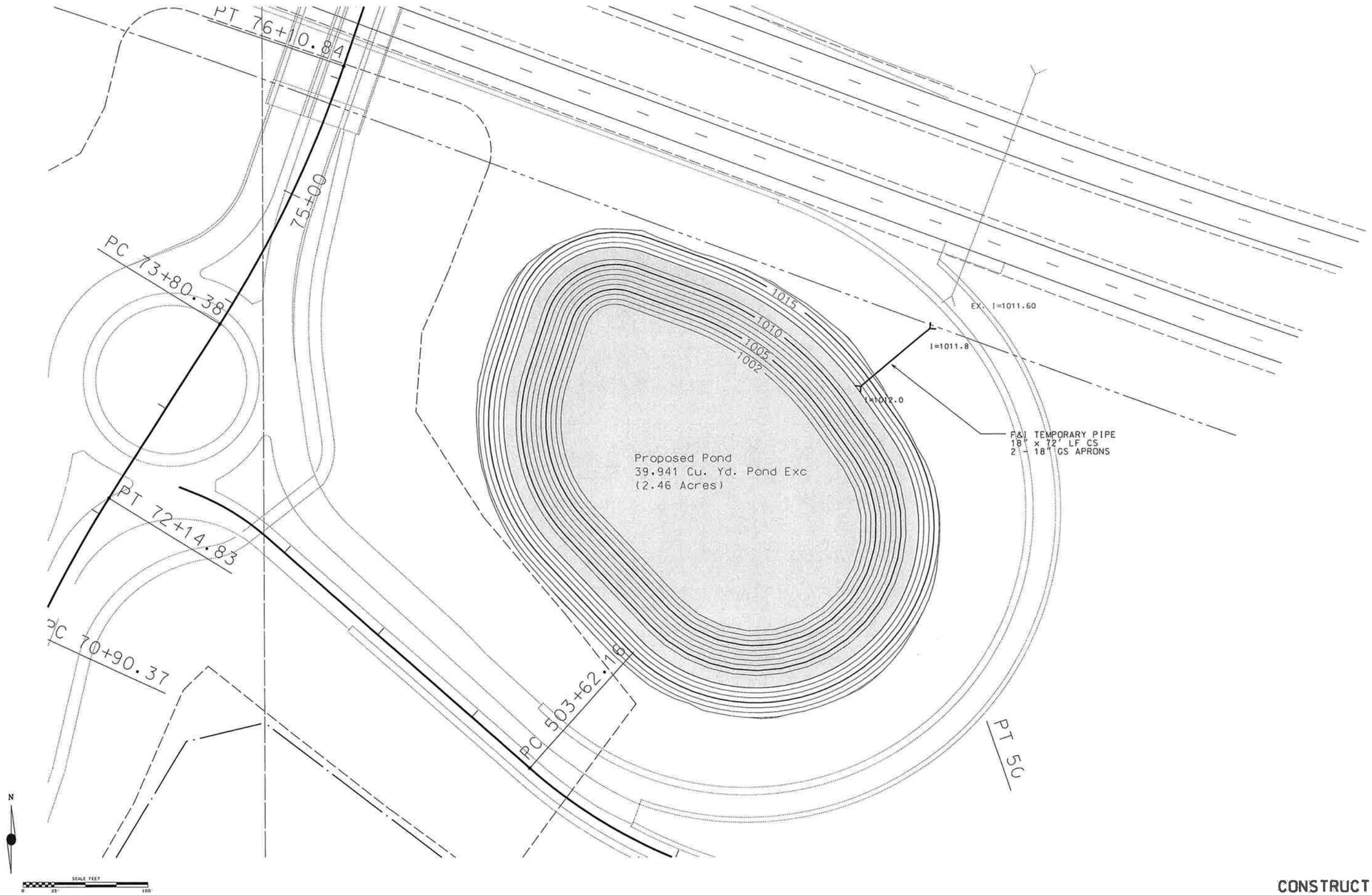
TH 14

CONSTRUCTION PLAN

CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER APR. 11, 2011

SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 18 OF 40 SHEETS

.../Grading 2011/CONST-PLAN.dgn 5/23/2011 9:36:15 AM

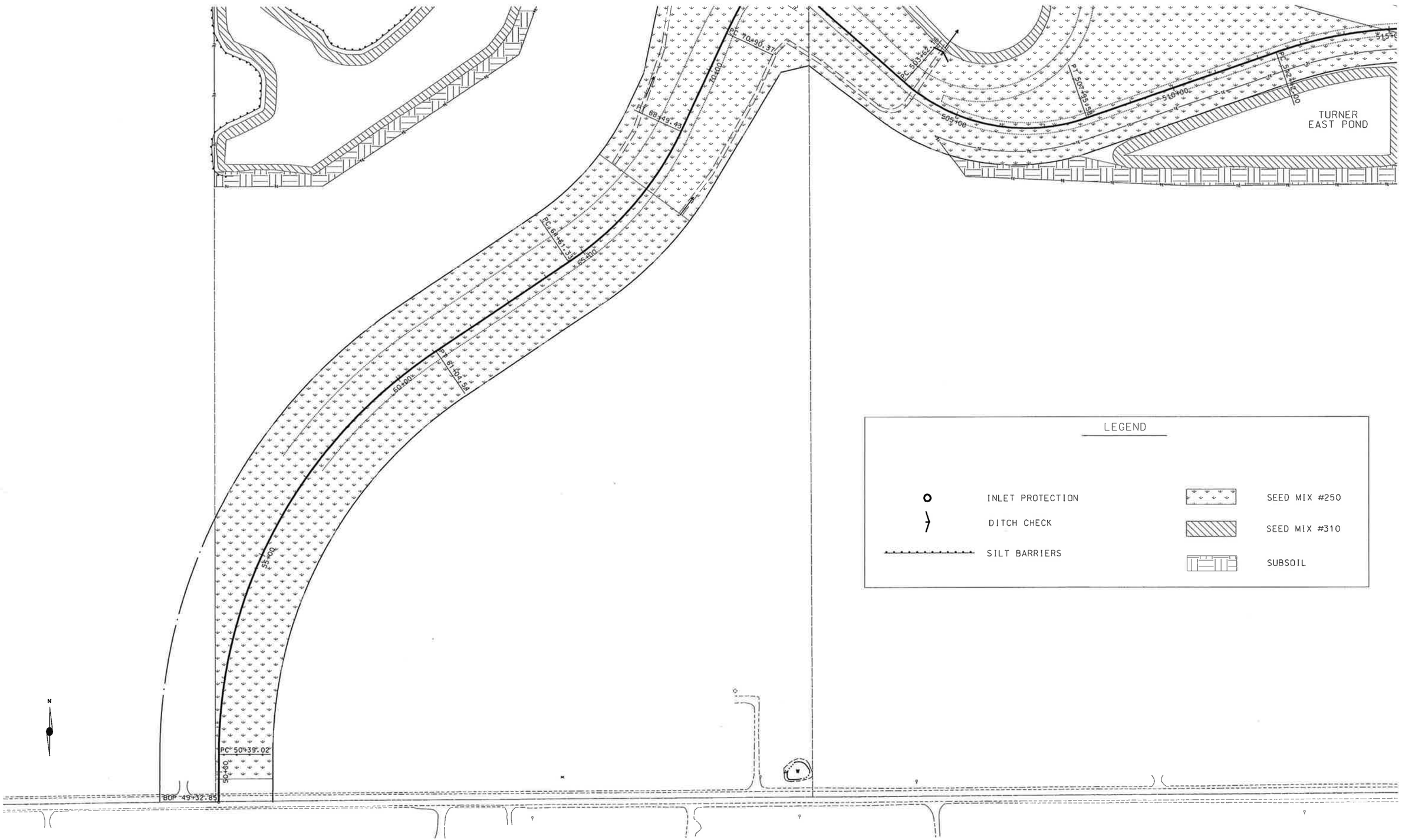


CONSTRUCTION PLAN

CERTIFIED BY Alan Forsberg Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER APR. 11, 2011

SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 19 OF 40 SHEETS

CONST-PLAN-POND.dgn 5/23/2011 1:28:51 PM

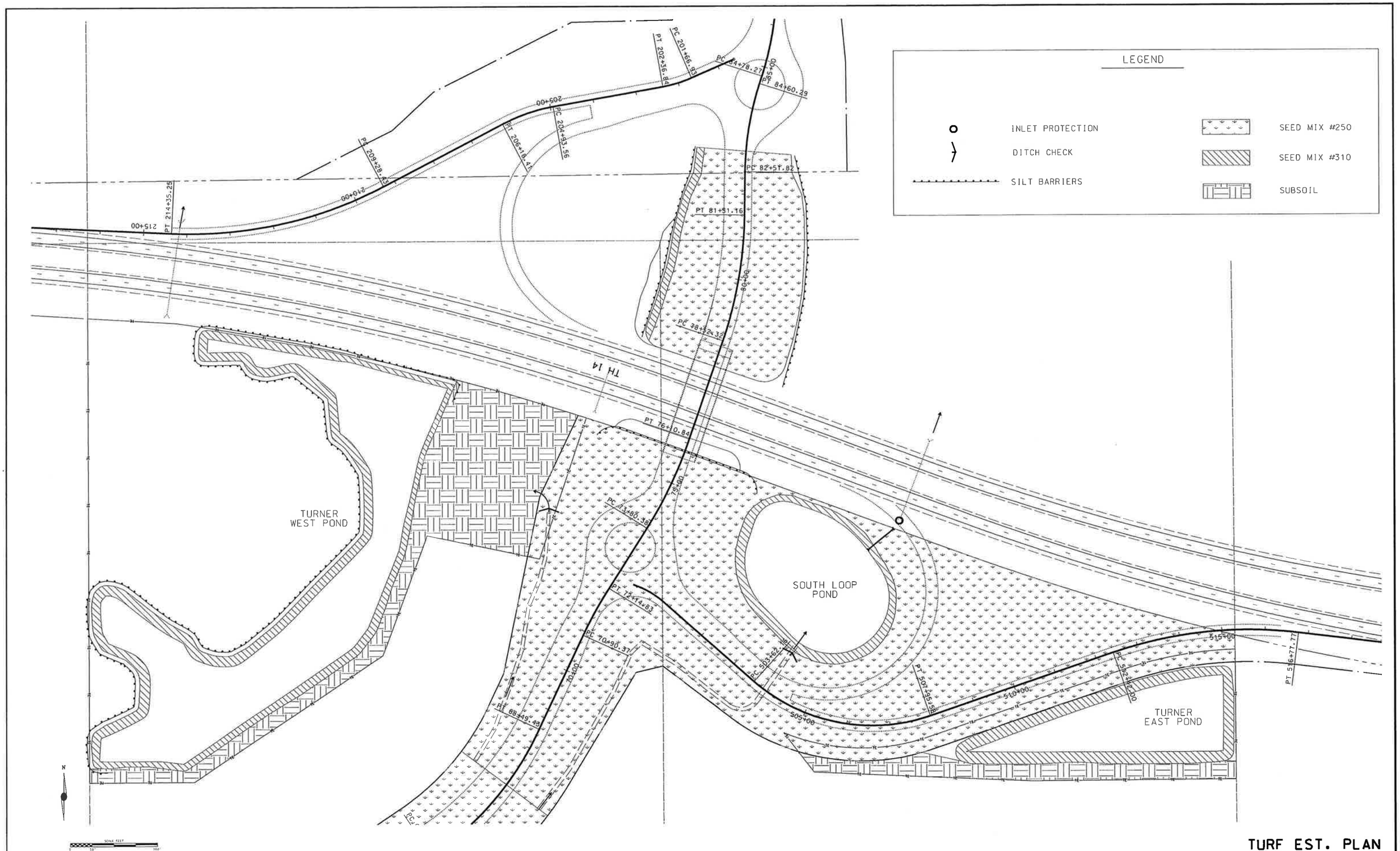


TURF EST. PLAN

CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER APR. 11, 2011

SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 20 OF 40 SHEETS

.../Erosion-Sheet1.dgn 5/23/2011 9:46:20 AM

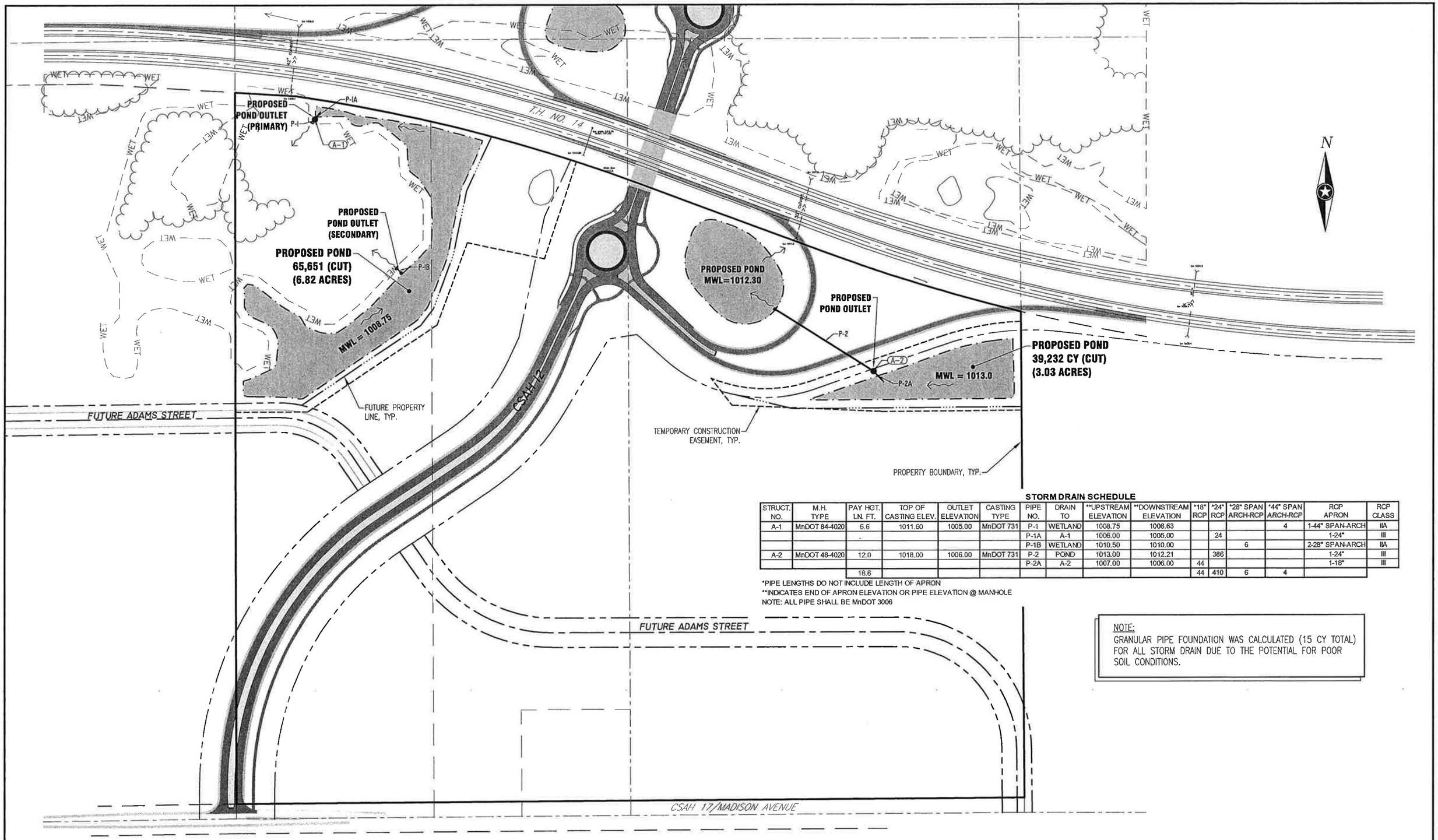


TURF EST. PLAN

CERTIFIED BY Alan Forsberg LIC. NO. 14720 PROFESSIONAL ENGINEER APR. 11, 2011

SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 21 OF 40 SHEETS

.../Erosion-Sheet2.dgn 5/23/2011 9:55:19 AM



STORM DRAIN SCHEDULE

STRUCT. NO.	M.H. TYPE	PAY HGT. LN. FT.	TOP OF CASTING ELEV.	OUTLET ELEVATION	CASTING TYPE	PIPE NO.	DRAIN TO	**UPSTREAM ELEVATION	**DOWNSTREAM ELEVATION	*18" RCP	*24" RCP	*28" SPAN ARCH-RCP	*44" SPAN ARCH-RCP	RCP APRON	RCP CLASS
A-1	MnDOT 84-4020	6.6	1011.60	1005.00	MnDOT 731	P-1	WETLAND	1008.75	1008.63				4	1-44" SPAN-ARCH	IIA
						P-1A	A-1	1006.00	1005.00		24			1-24"	III
						P-1B	WETLAND	1010.50	1010.00			6		2-28" SPAN-ARCH	IIA
A-2	MnDOT 48-4020	12.0	1018.00	1006.00	MnDOT 731	P-2	POND	1013.00	1012.21		386			1-24"	III
						P-2A	A-2	1007.00	1006.00	44				1-18"	III
		18.6								44	410	6	4		

*PIPE LENGTHS DO NOT INCLUDE LENGTH OF APRON
**INDICATES END OF APRON ELEVATION OR PIPE ELEVATION @ MANHOLE
NOTE: ALL PIPE SHALL BE MnDOT 3006

NOTE:
GRANULAR PIPE FOUNDATION WAS CALCULATED (15 CY TOTAL) FOR ALL STORM DRAIN DUE TO THE POTENTIAL FOR POOR SOIL CONDITIONS.

PLOT DATE: 5/25/2011

Eng. Proj. No. 10-12984 SP Proj. No. 07-612-19
City Proj. No. _____ Federal Proj. No. _____
County Proj. No. _____ CAD File Name 12984 SITE-GRADE
SP 0702-116A (TH 14)

I&S GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS
Faribault, Minnesota: 507-331-1500
Mankato, Minnesota: 507-387-6651
Web: www.is-grp.com

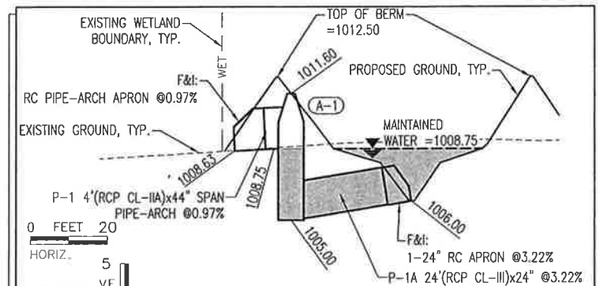
I HEREBY CERTIFY THAT THIS PLAN WAS CREATED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA
CHARLES J. BRANDEL
DATE 4-11-11 LIC. NO. 43359

REVISIONS

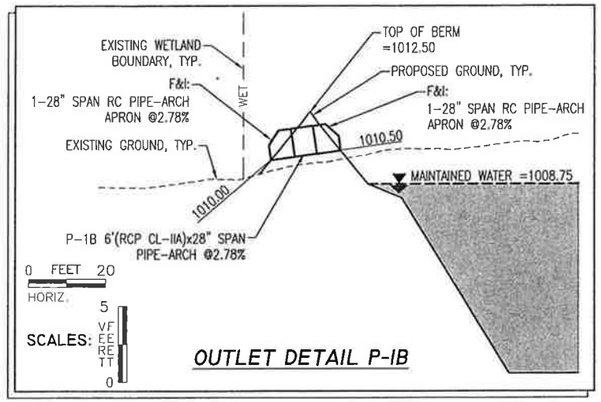
SCALES: HORIZ. 0 FEET 150; VERT. 0

STORMWATER POND LOCATION PLAN & STORM DRAIN SCHEDULE
CSAH NO. 12 STORMWATER PONDS CONSTRUCTION
BLUE EARTH COUNTY, MINNESOTA

SHEET 22 OF 40 SHEETS



OUTLET DETAIL P-I & P-IA



OUTLET DETAIL P-IB

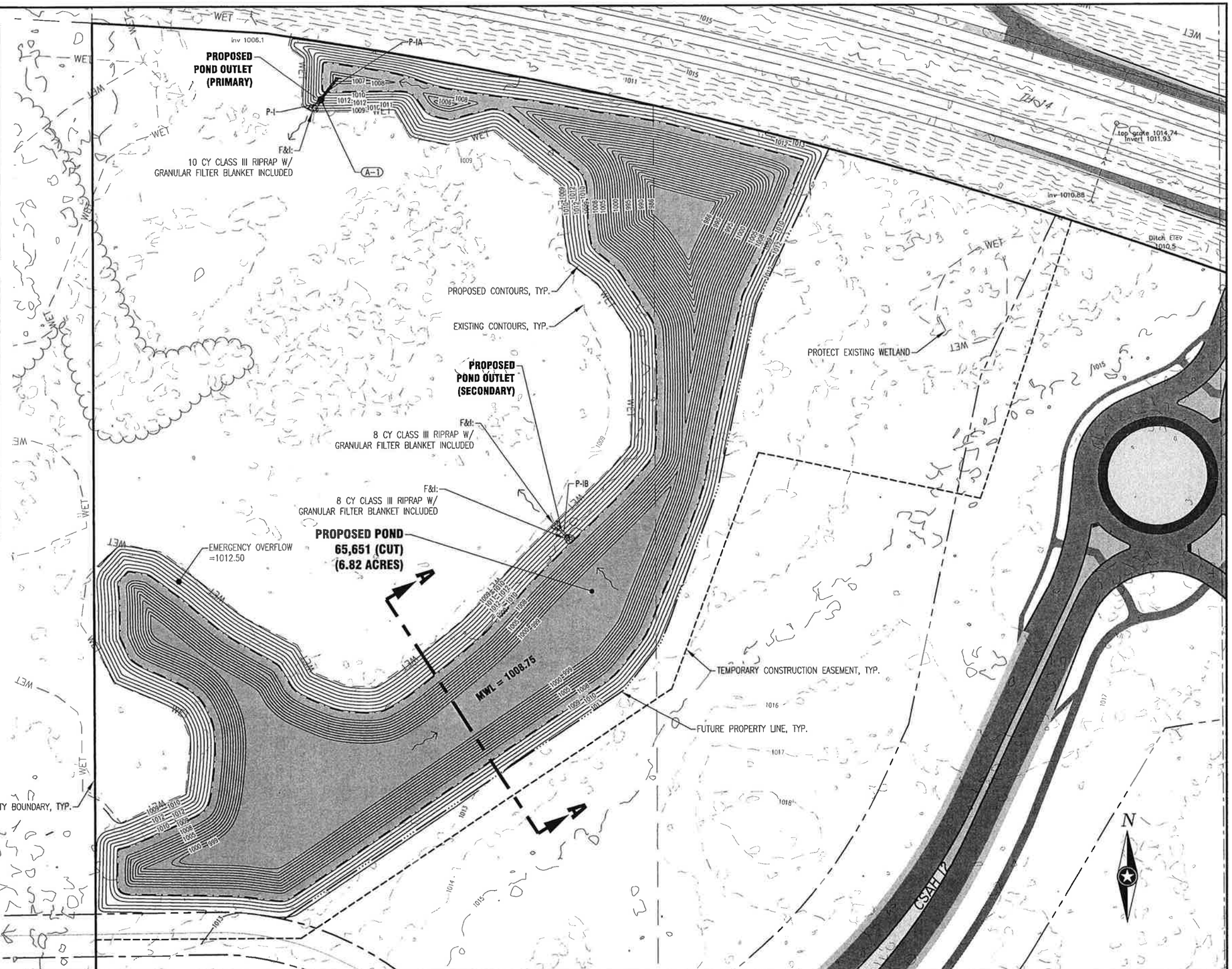
GENERAL NOTES:
ALL CONCRETE PIPE SHALL BE TIED (INDICENTAL).

RIPRAP SHALL BE PLACED SO THE TOP OF PROPOSED RIPRAP MATCHES ORIGINAL EXISTING GRADE.

NO CONSTRUCTION SHALL OCCUR IN THE EXISTING WETLAND.

GRANULAR PIPE FOUNDATION WAS CALCULATED (15 CY TOTAL) FOR ALL STORM DRAIN DUE TO THE POTENTIAL FOR POOR SOIL CONDITIONS.

GRADING NOTE:
POND GRADING CALCULATIONS ARE BASED ON BLUE EARTH COUNTY FLY-OVER TOPOGRAPHIC SURVEY.



Eng. Proj. No.	10-12984	SP Proj. No.	07-612-19
City Proj. No.		Federal Proj. No.	
County Proj. No.		CAD File Name	12984 SITE-GRADE
SP 0702-116A (TH 14)			

PLOT DATE: 5/25/2011

I&S GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

Faribault, Minnesota: 507-331-1500
Mankato, Minnesota: 507-387-6651
Web: www.is-grp.com

I HEREBY CERTIFY THAT THIS PLAN WAS CREATED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CHARLES J. BRANDEL

DATE 4-11-11 LIC. NO. 43359

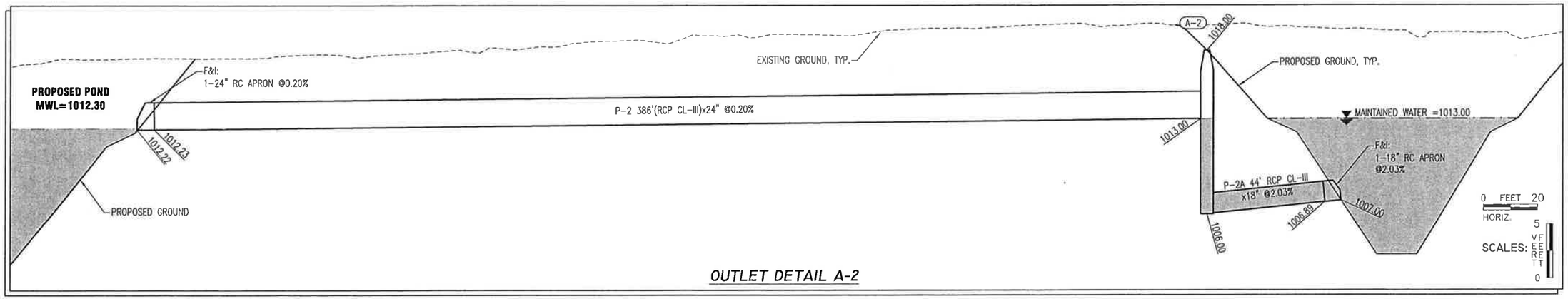
REVISIONS

0 FEET 60
HORIZ.
SCALES: VERT. 1 0

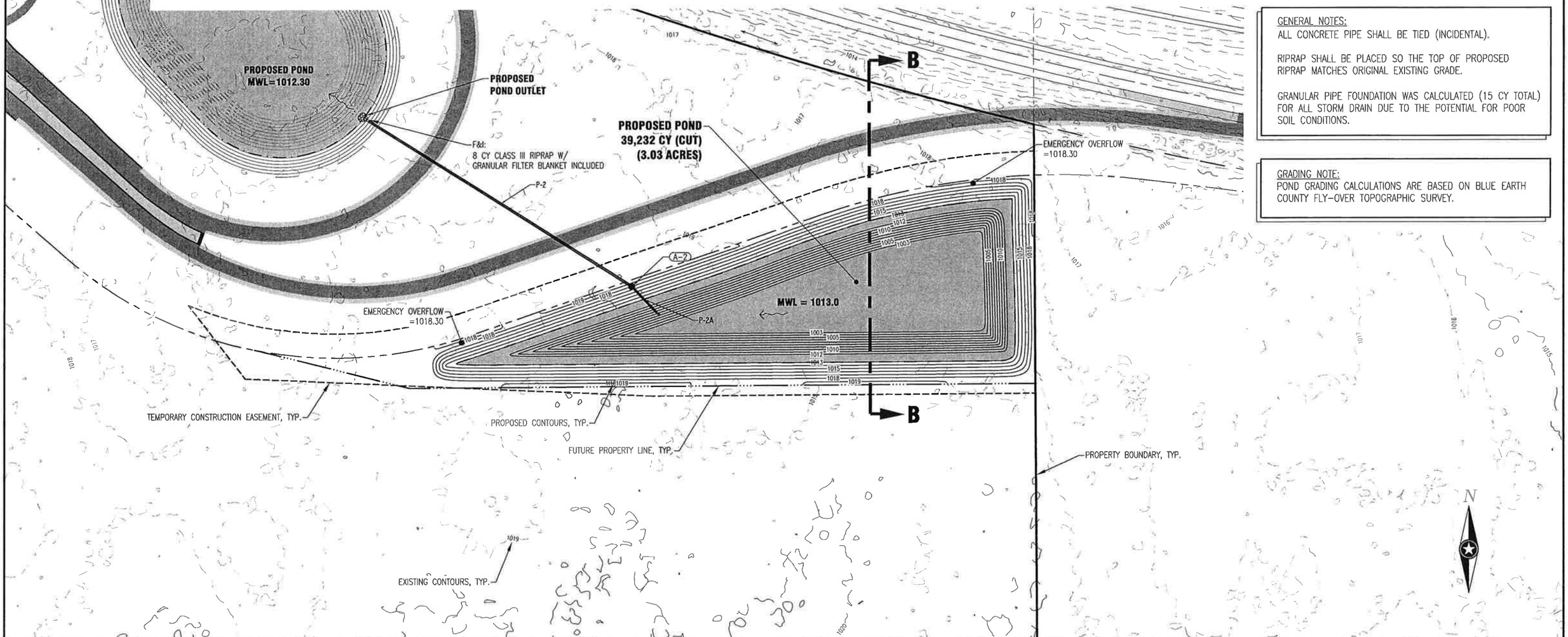
POND I GRADING PLAN

CSAH NO. 12 STORMWATER PONDS CONSTRUCTION
BLUE EARTH COUNTY, MINNESOTA

SHEET 23 OF 40 SHEETS



OUTLET DETAIL A-2



GENERAL NOTES:
ALL CONCRETE PIPE SHALL BE TIED (INCIDENTAL).

RIPRAP SHALL BE PLACED SO THE TOP OF PROPOSED RIPRAP MATCHES ORIGINAL EXISTING GRADE.

GRANULAR PIPE FOUNDATION WAS CALCULATED (15 CY TOTAL) FOR ALL STORM DRAIN DUE TO THE POTENTIAL FOR POOR SOIL CONDITIONS.

GRADING NOTE:
POND GRADING CALCULATIONS ARE BASED ON BLUE EARTH COUNTY FLY-OVER TOPOGRAPHIC SURVEY.

PLOT DATE: 5/25/2011

Eng. Proj. No.	10-12984	SP Proj. No.	07-612-19
City Proj. No.		Federal Proj. No.	
County Proj. No.		CAD File Name	12984 SITE-GRADE
SP 0702-116A (TH 14)			

IS GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

Faribault, Minnesota: 507-331-1500
Mankato, Minnesota: 507-387-6651
Web: www.is-grp.com

I HEREBY CERTIFY THAT THIS PLAN WAS CREATED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CHARLES J. BRANDEL

DATE 4-11-11 LIC. NO. 43359

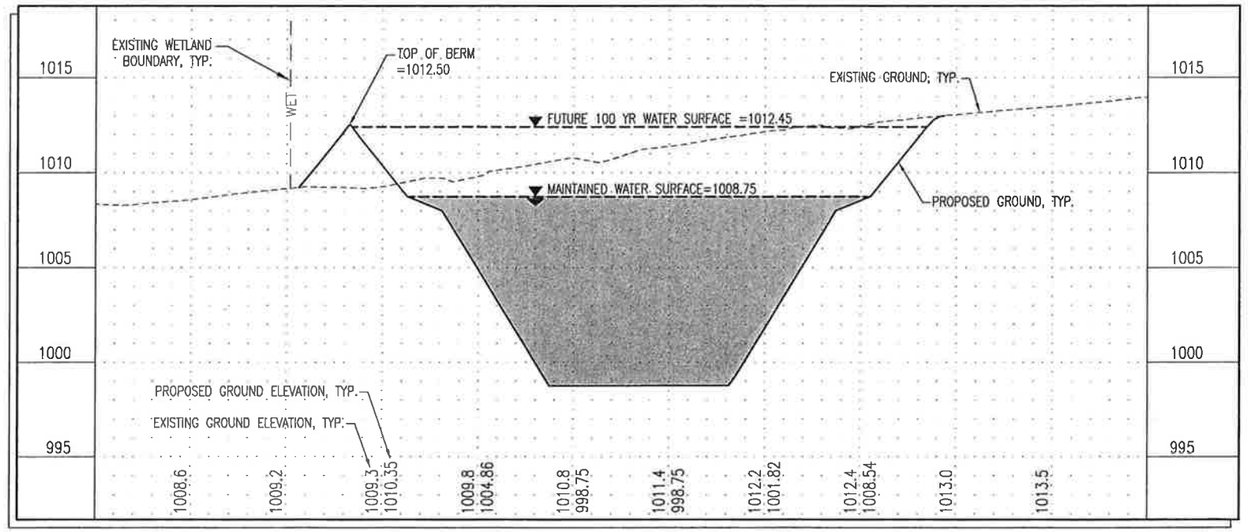
REVISIONS

0 FEET 60
HORIZ.
SCALES: VERT. 0

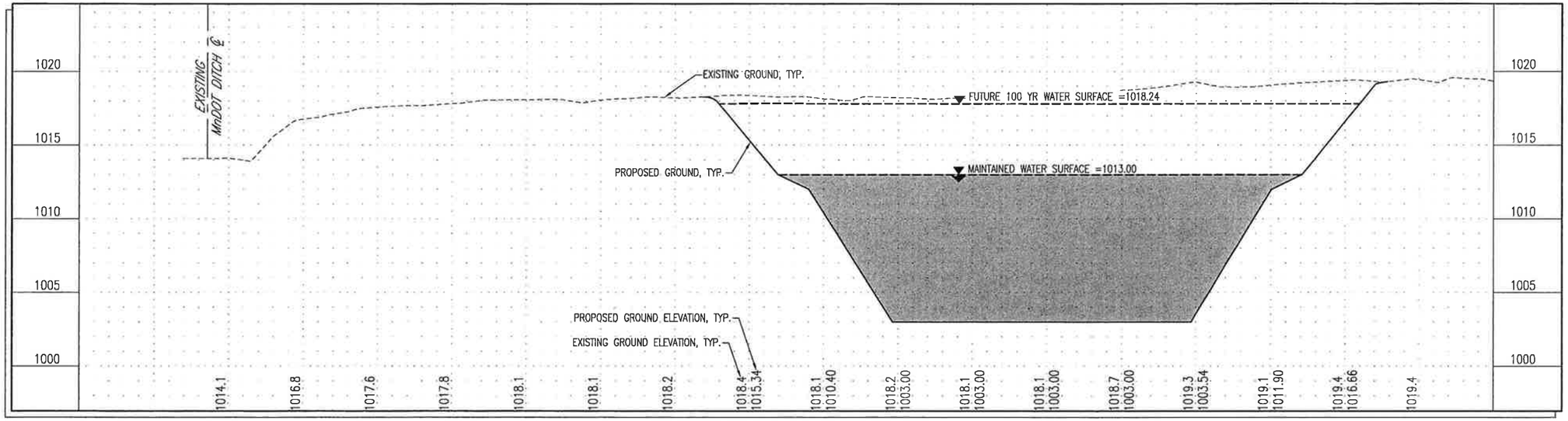
POND 2 GRADING PLAN

CSAH NO. 12 STORMWATER PONDS CONSTRUCTION
BLUE EARTH COUNTY, MINNESOTA

SHEET 24 OF 40 SHEETS



SECTION A-A (POND 1)



SECTION B-B (POND 2)

Eng. Proj. No.	10-12984	SP Proj. No.	07-612-19
City Proj. No.		Federal Proj. No.	
County Proj. No.		CAD File Name	12984 SITE-GRADE
SP 0702-116A (TH 14)			

PLOT DATE: 5/23/2011

IS GROUP
One firm - start to finish™
ARCHITECTS • ENGINEERS • PLANNERS • LAND SURVEYORS • SCIENTISTS

Faribault, Minnesota: 507-331-1500
Mankato, Minnesota: 507-387-6651
Web: www.is-grp.com

I HEREBY CERTIFY THAT THIS PLAN WAS CREATED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA

CHARLES J. BRANDEL

DATE 4-11-11 LIC. NO. 43359

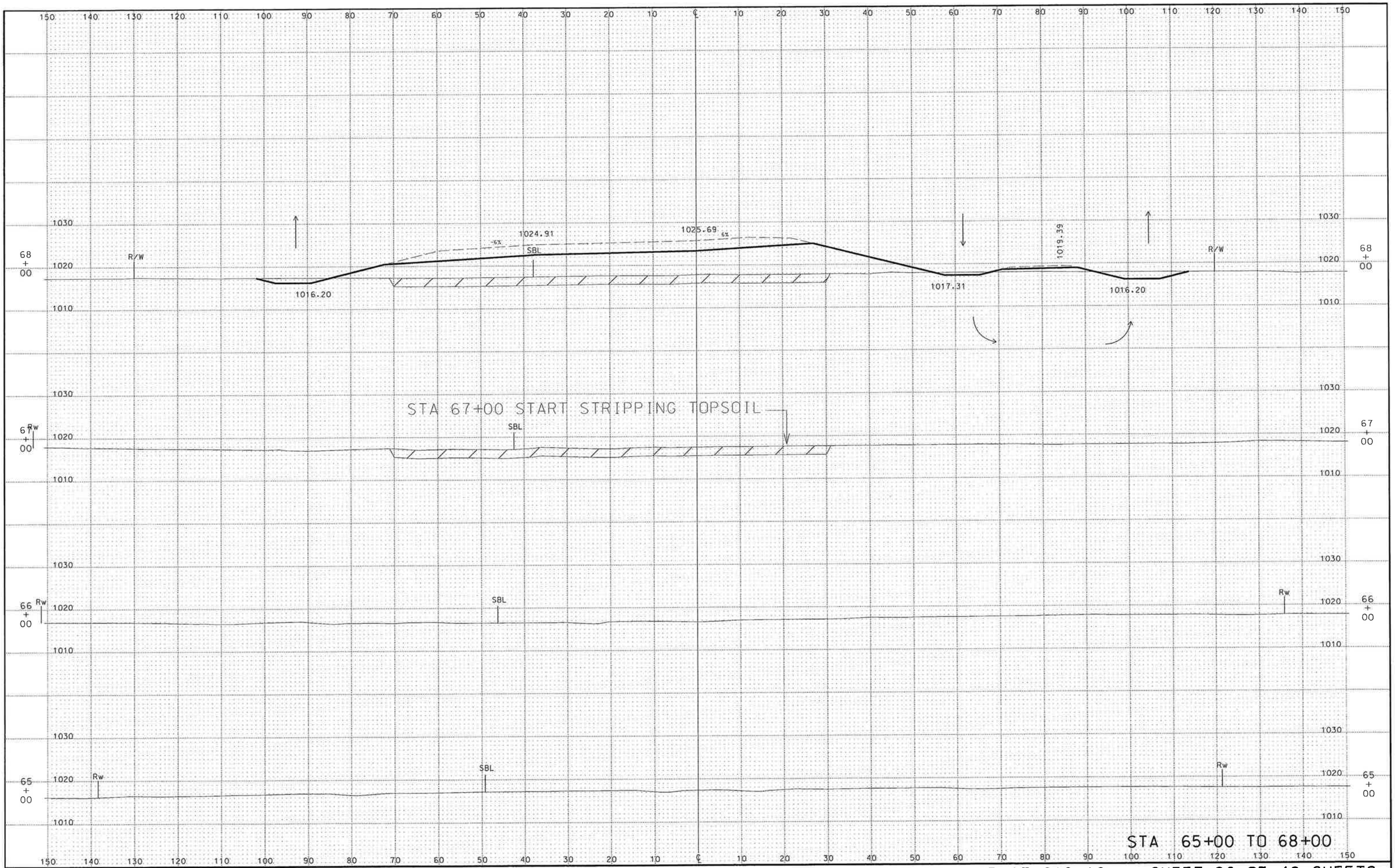
REVISIONS

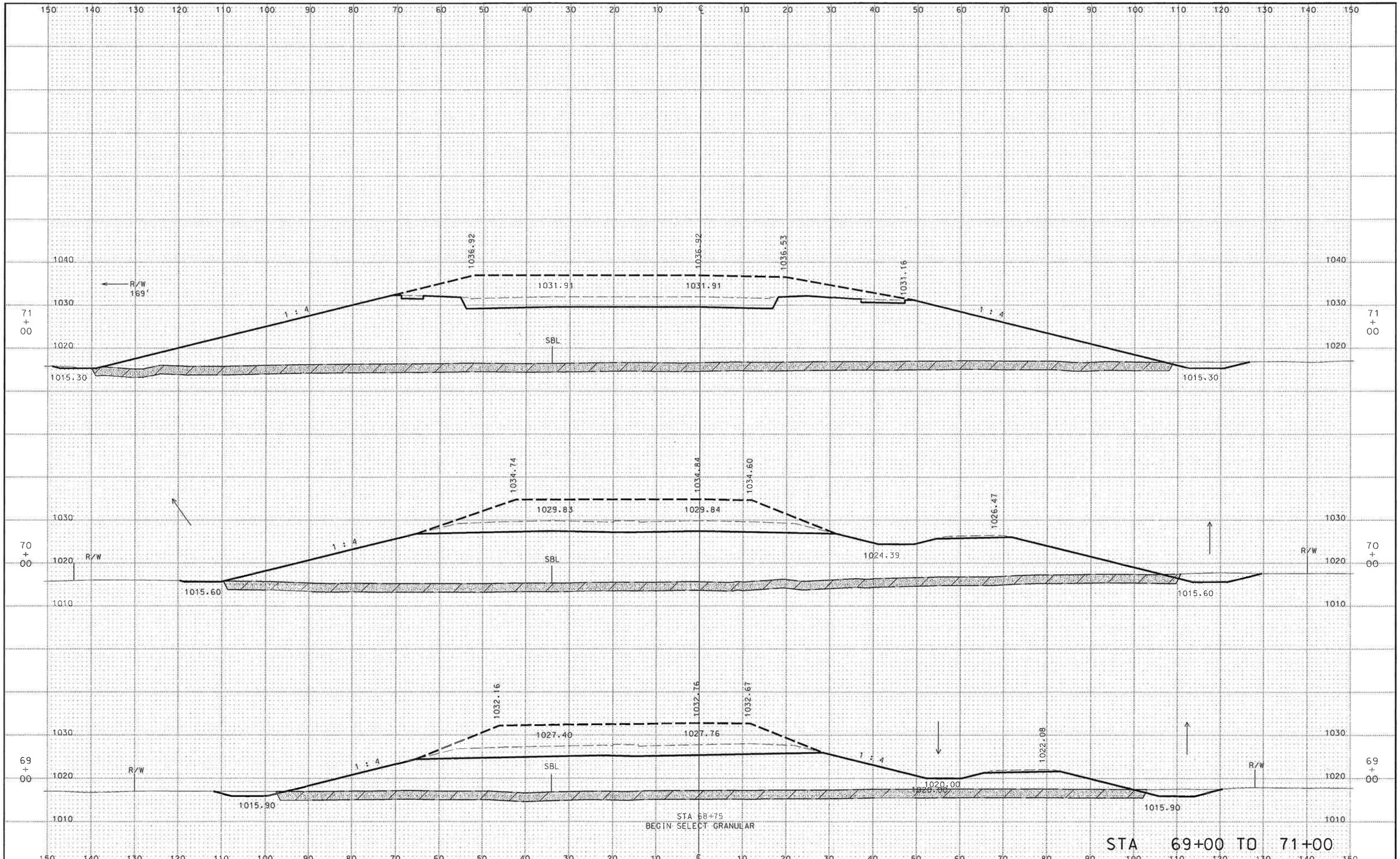
SCALES: HORIZ. 0 FEET 20; VERT. 0 4

POND SECTIONS & SKIMMER GRATE DETAILS

CSAH NO. 12 STORMWATER PONDS CONSTRUCTION
BLUE EARTH COUNTY, MINNESOTA

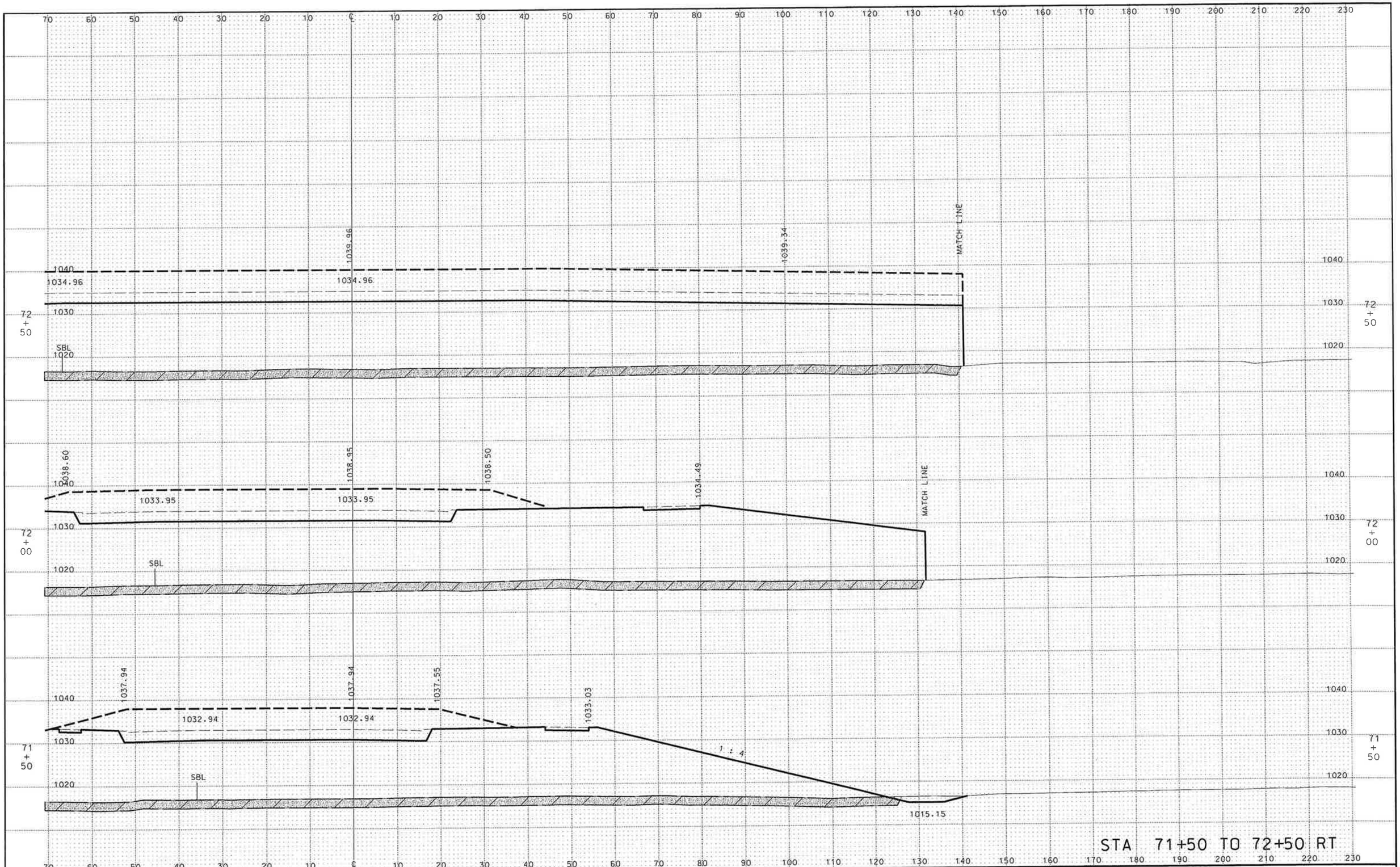
SHEET 25 OF 40 SHEETS


150 140 130 120 110 100 90 80 70 60 50 40 30 20 10 ℄ 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150
1030
1020
1010
68 + 00
R/W
1024.91
-5%
1025.69
6%
SBL
1016.20
1017.31
1019.39
1016.20
R/W
STA 67+00 START STRIPPING TOPSOIL
67 + 00
Rw
SBL
66 + 00
Rw
SBL
Rw
65 + 00
Rw
SBL
Rw
STA 65+00 TO 68+00



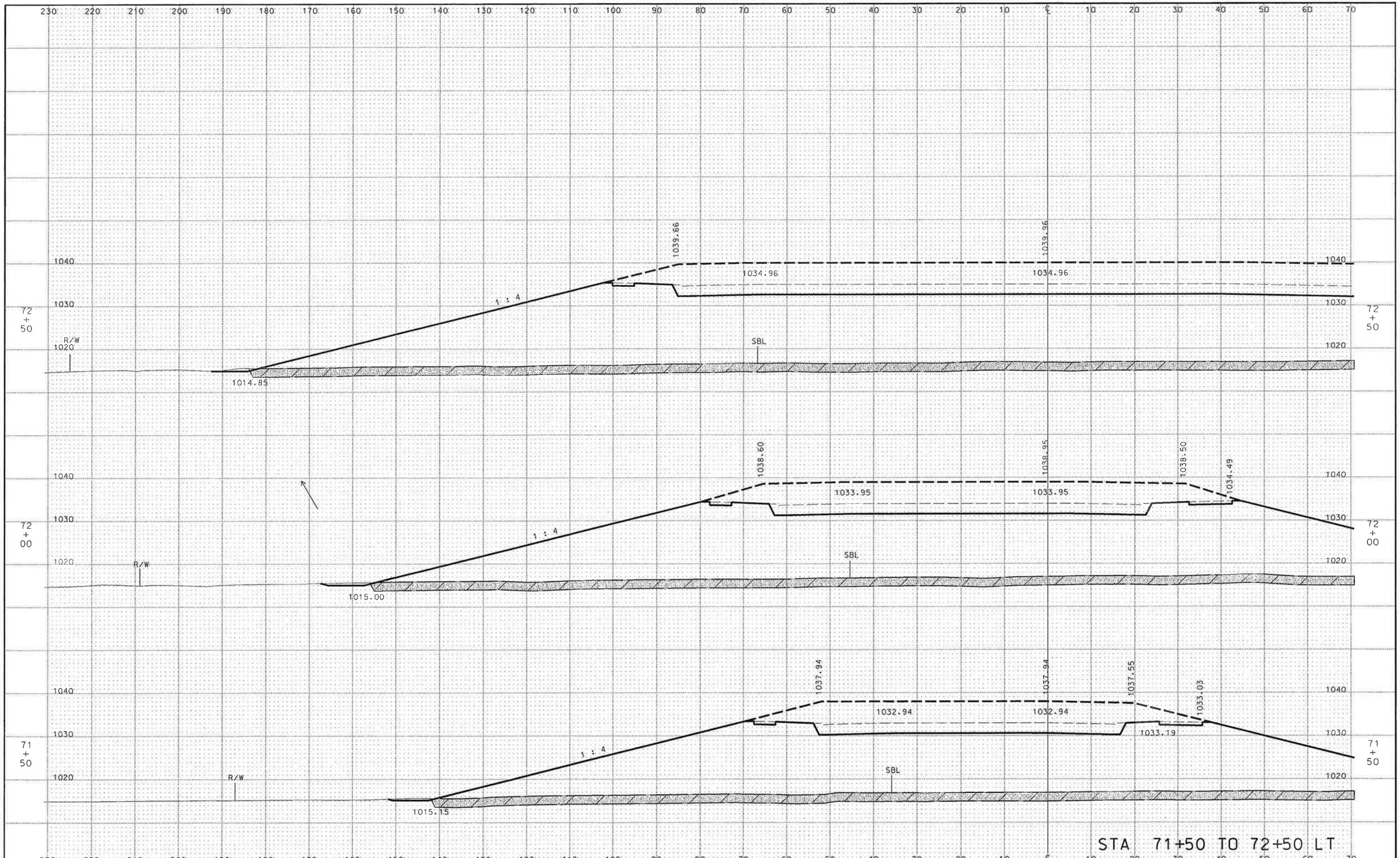
SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 27 OF 40 SHEETS

.../17 to 3/Grading 2011/Xsec2.DGN 5/20/2011 2:36:00 PM



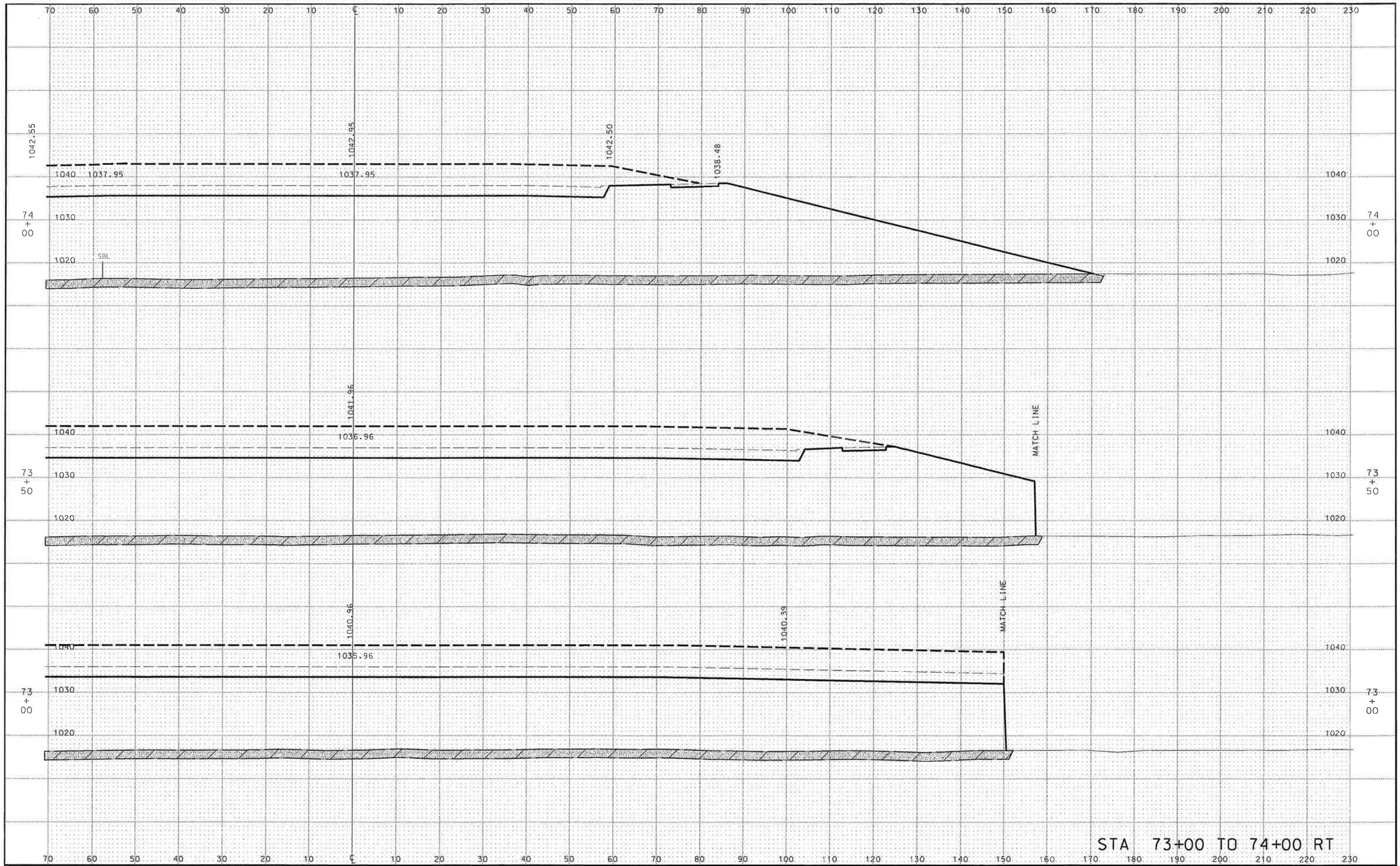
SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 28 OF 40 SHEETS

.../17 to 3/Grading 2011/Xsec3.DGN 5/20/2011 2:36:50 PM



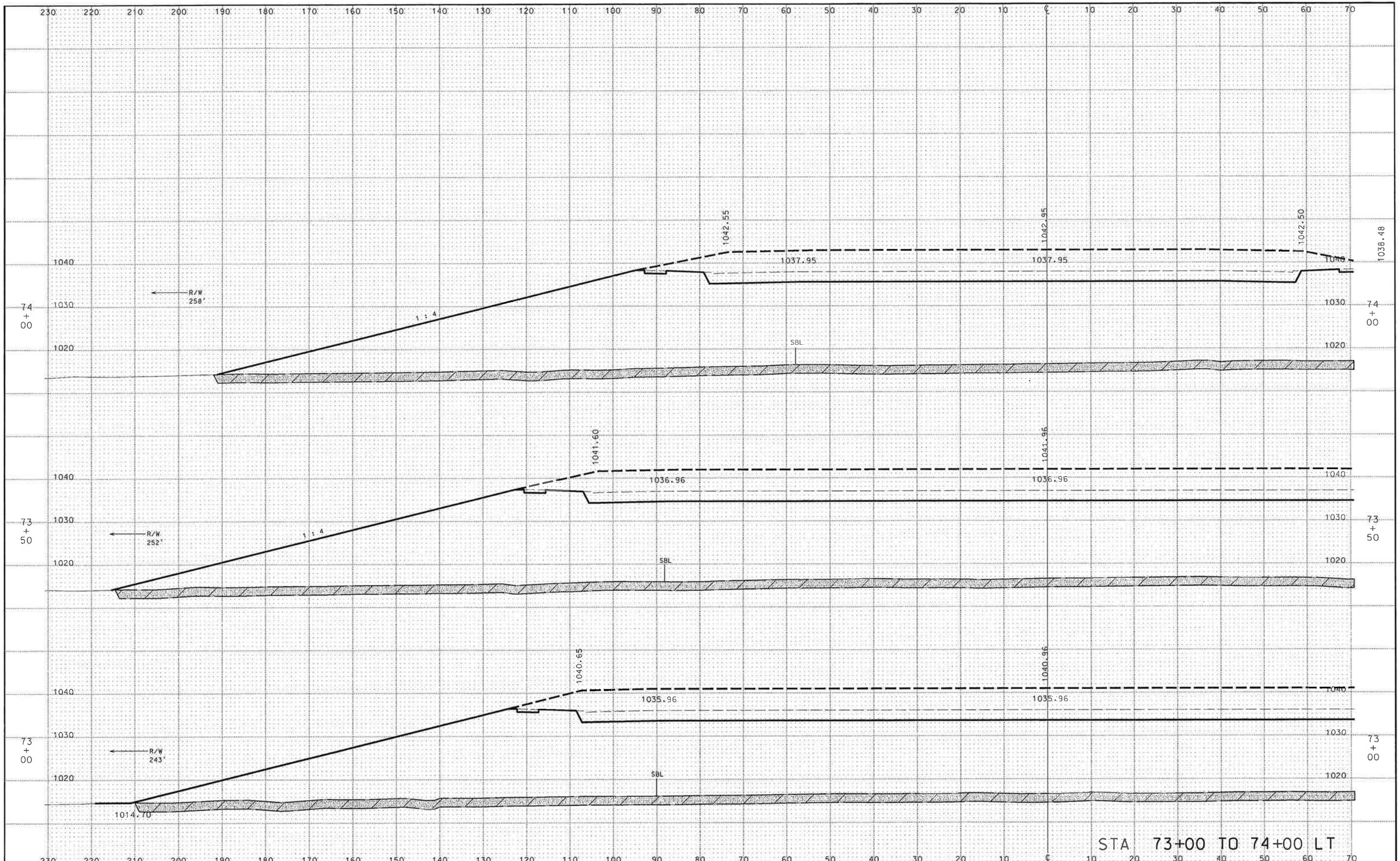
SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 29 OF 40 SHEETS

.../17 to 3/Grading 2011/Xsec4.DGN 5/20/2011 2:37:54 PM



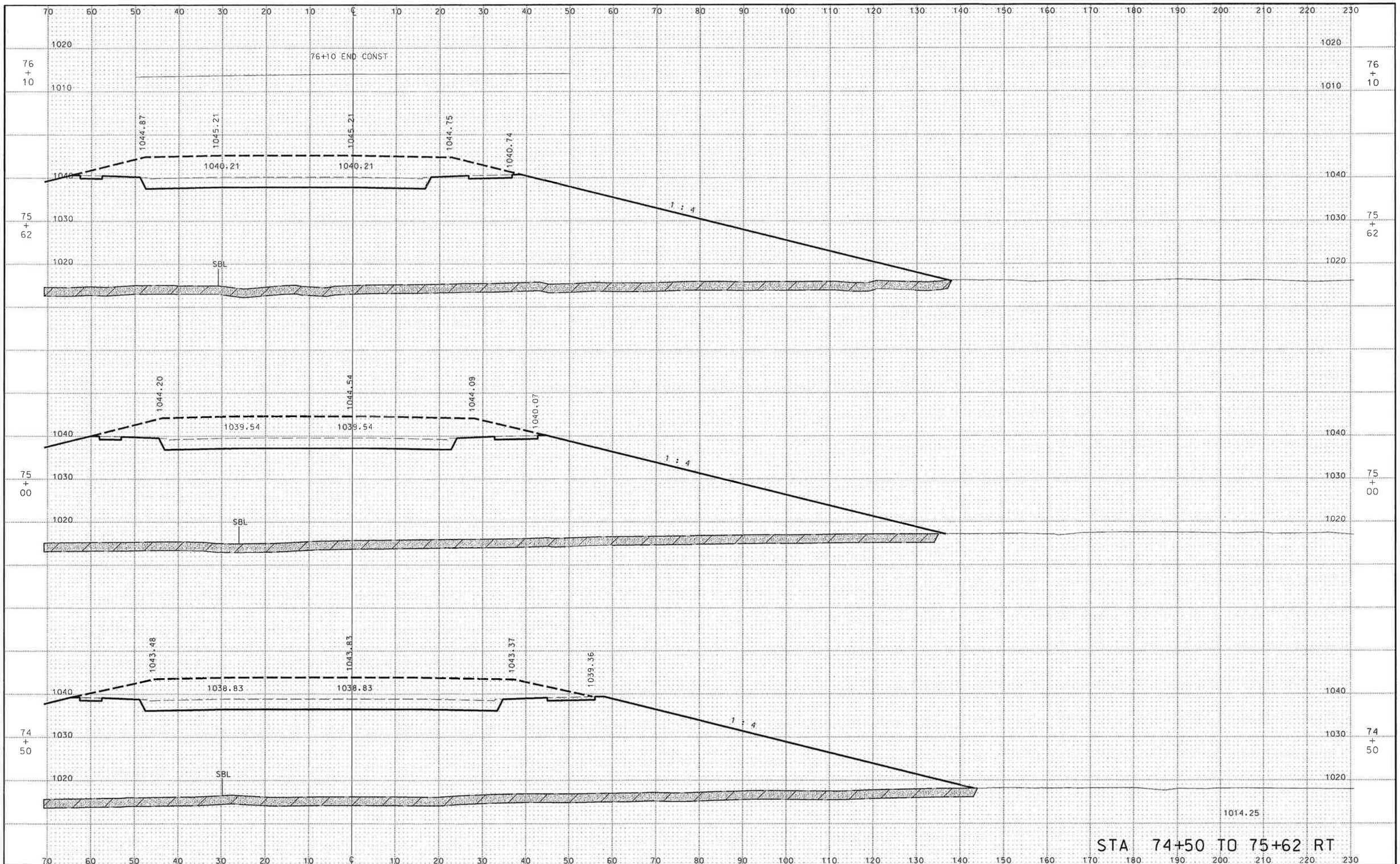
SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 30 OF 40 SHEETS

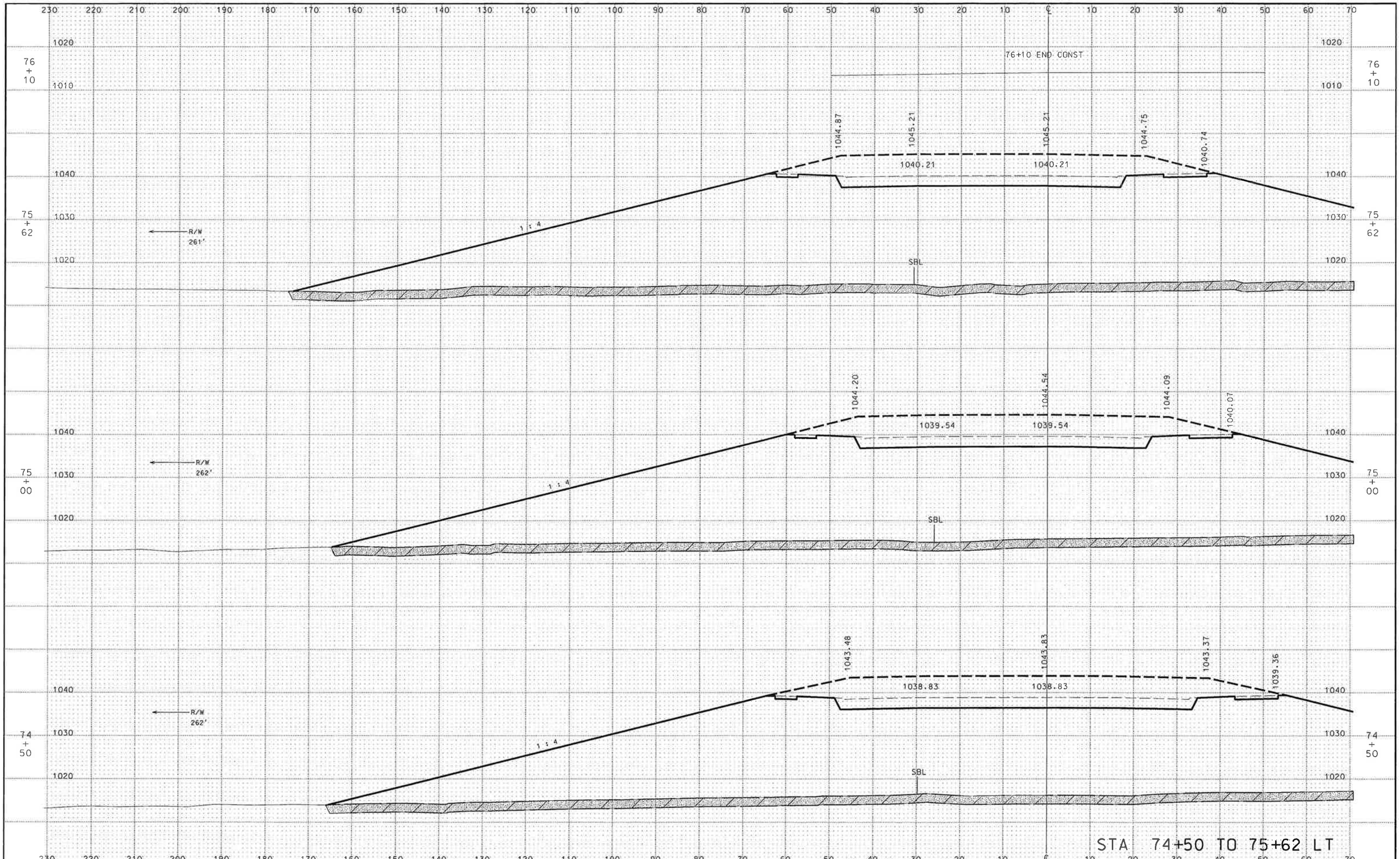
.../17 to 3/Grading 2011/Xsec5.DGN 5/20/2011 2:38:31 PM



SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 31 OF 40 SHEETS

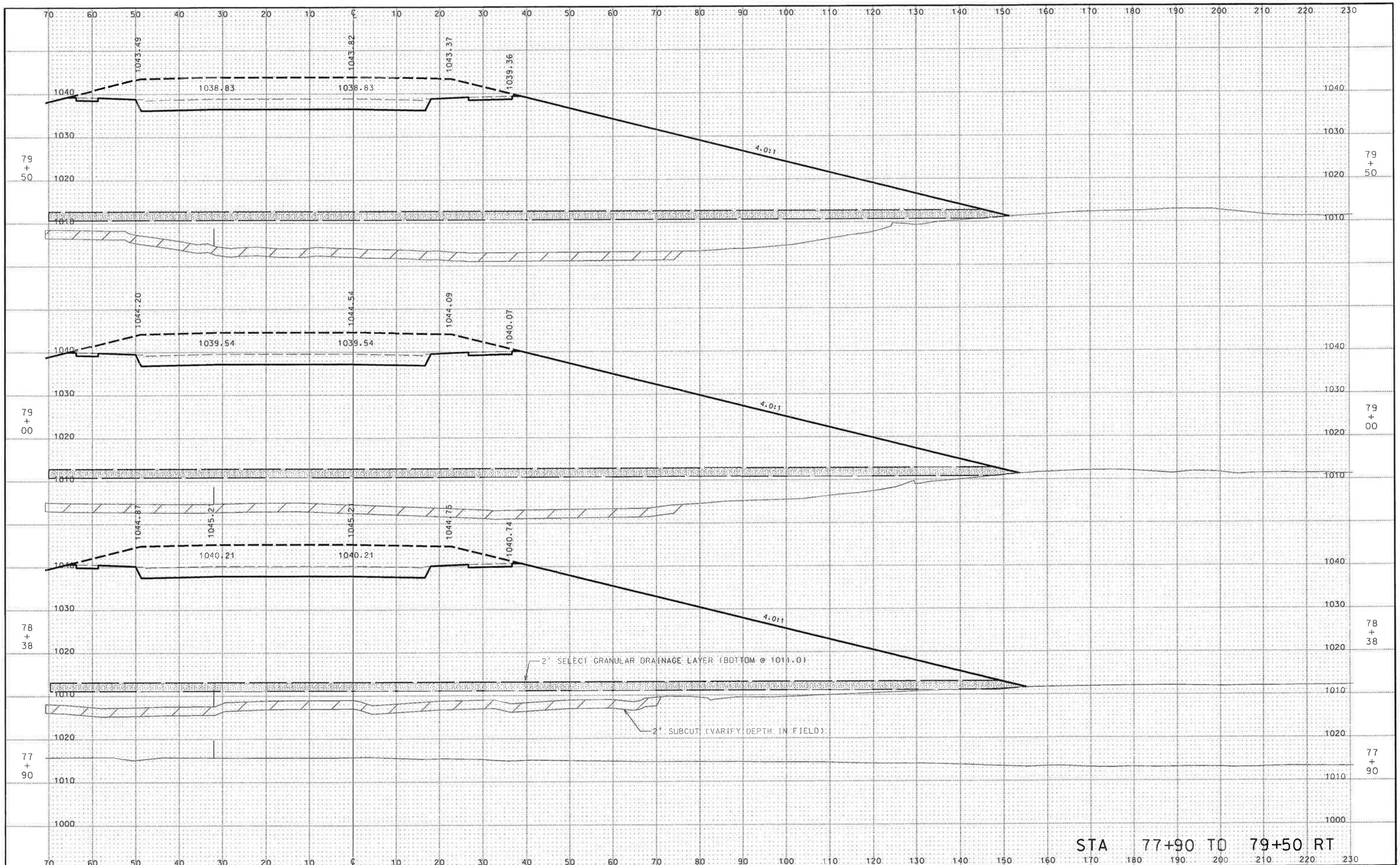
.../17 to 3/Grading 2011/Xsec6.DGN 5/20/2011 2:39:03 PM


76+10 END CONST
1044.87
1045.21
1045.21
1044.75
1040.74
1040.21
1040.21
1 : 4
SBL
1044.20
1044.54
1044.09
1040.07
1039.54
1039.54
1 : 4
SBL
1043.48
1043.83
1043.37
1039.36
1038.83
1038.83
1 : 4
SBL
1014.25
STA 74+50 TO 75+62 RT



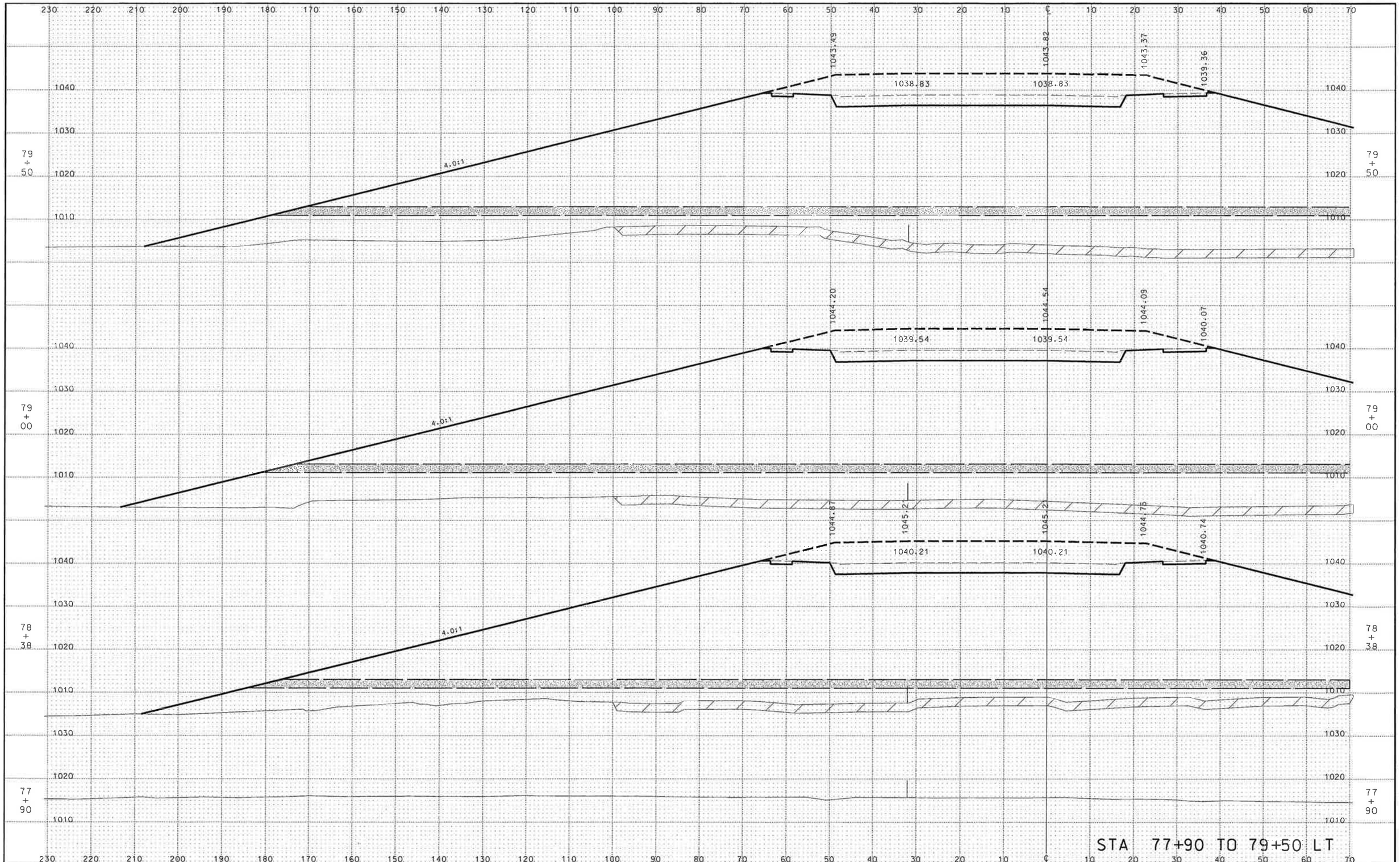
SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 33 OF 40 SHEETS

.../17 to 3/Grading 2011/Xsec8.DGN 5/20/2011 2:41:02 PM

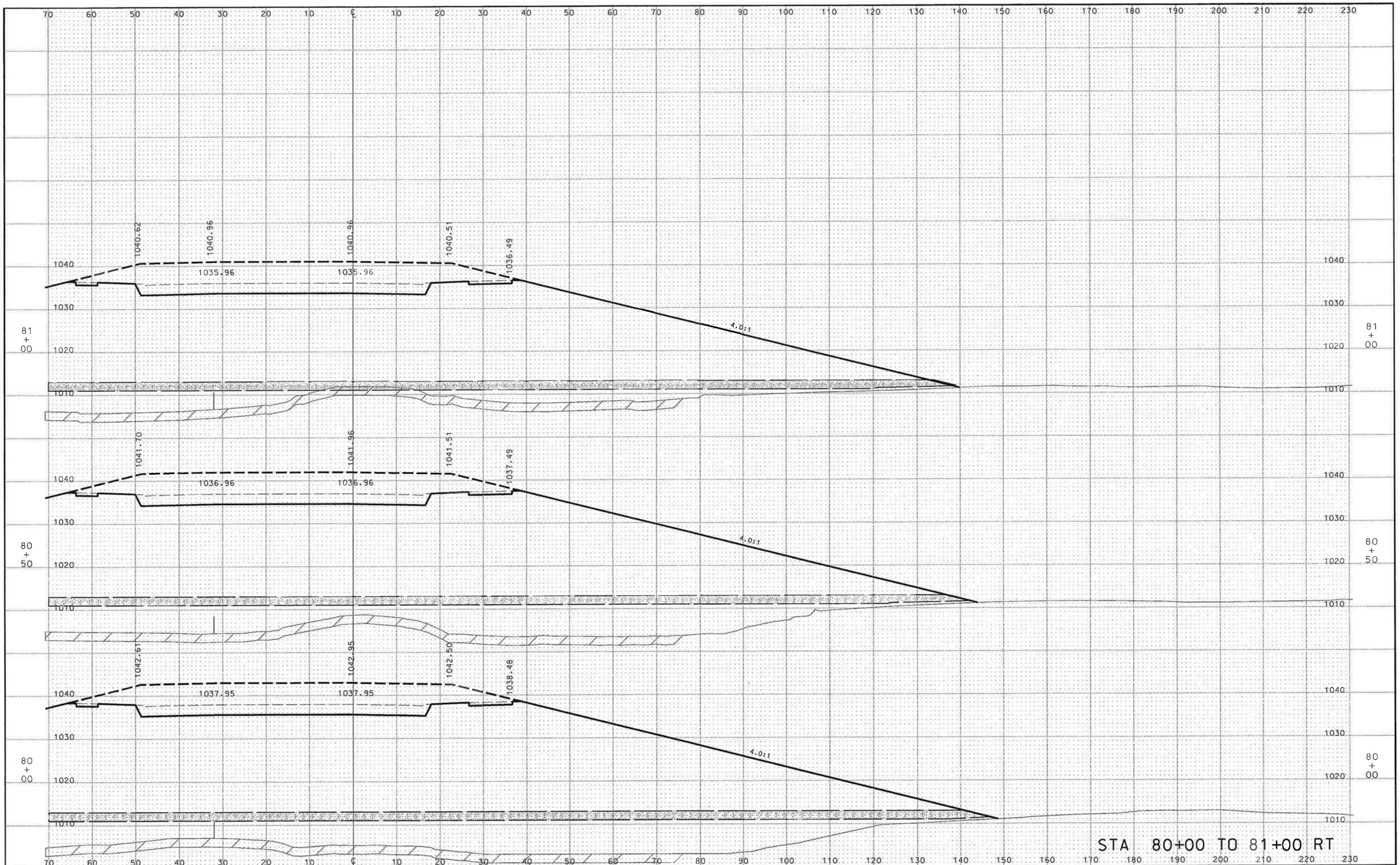


SP 0702 -116A (TH 14) CSAH 12 SP 07-612-19 SHEET 34 OF 40 SHEETS

.../17 to 3/Grading 2011/Xsec9.dgn 5/20/2011 2:41:32 PM

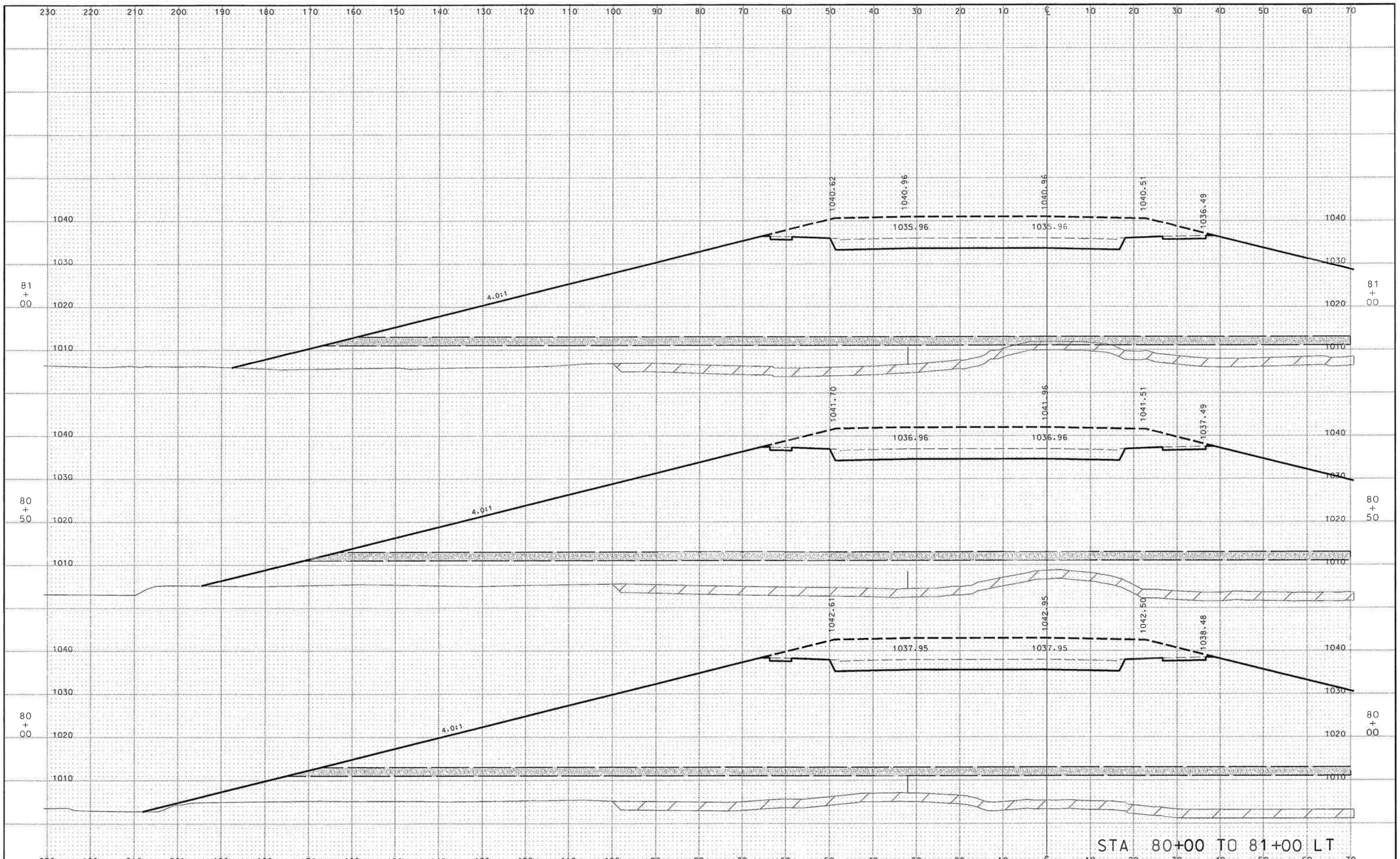


.../Grading 2011/Xsec10.dgn 5/20/2011 2:42:04 PM



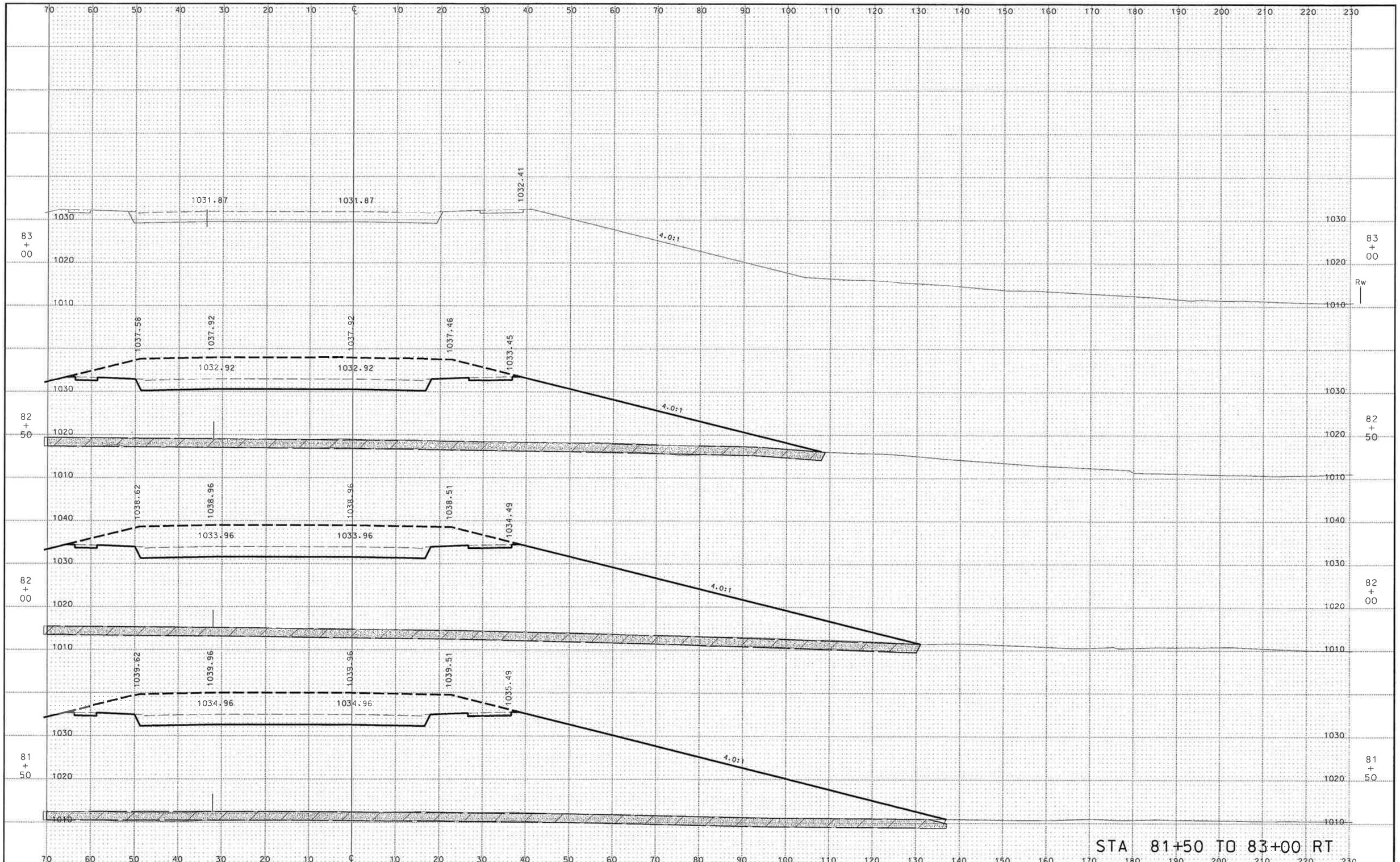
SP 0702 - 116A (TH14) CSAH 12 SP 07-612-19 SHEET 36 OF 40 SHEETS

.../Grading 2011/Xsec11.dgn 5/20/2011 2:42:37 PM



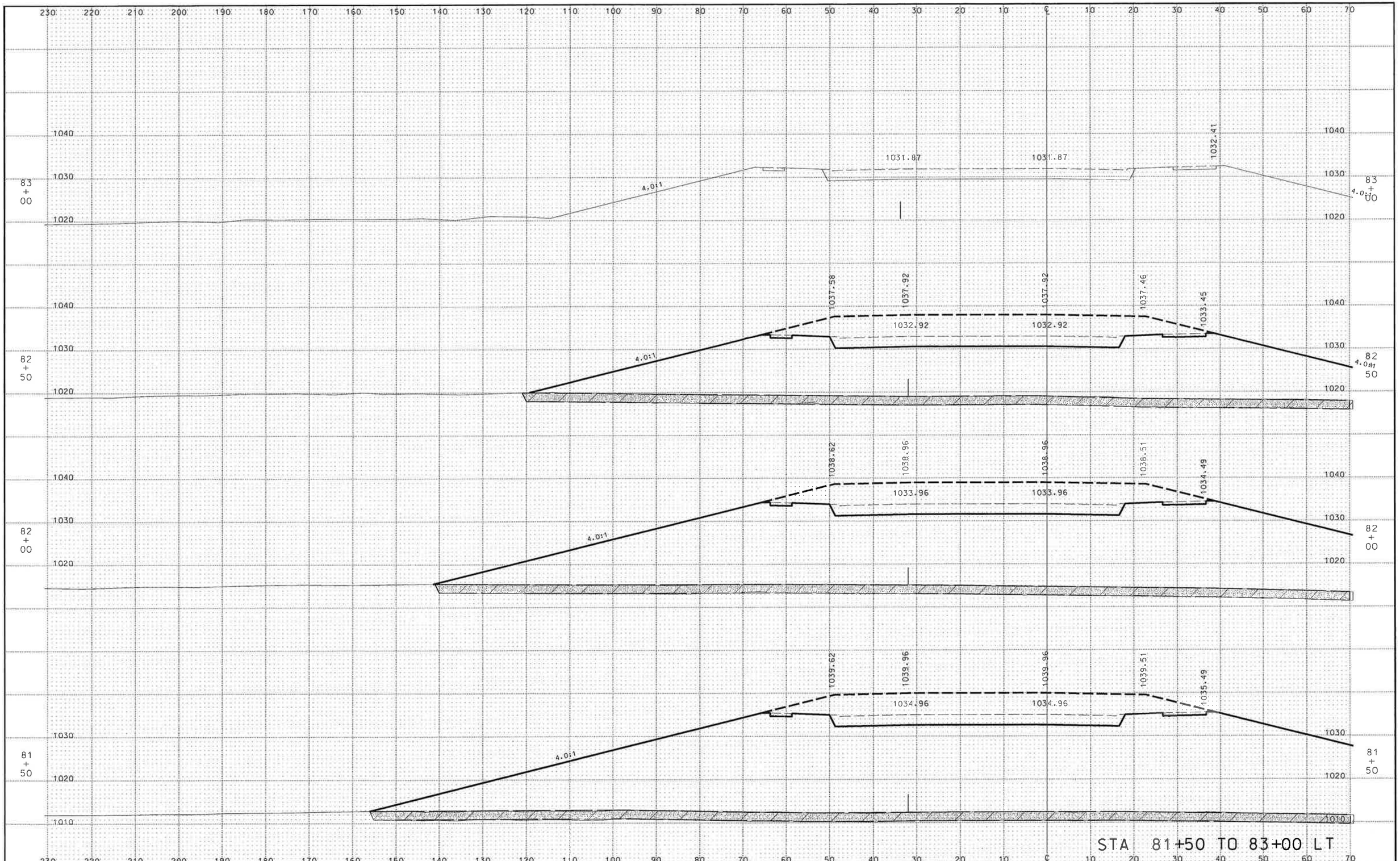
SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 37 OF 40 SHEETS

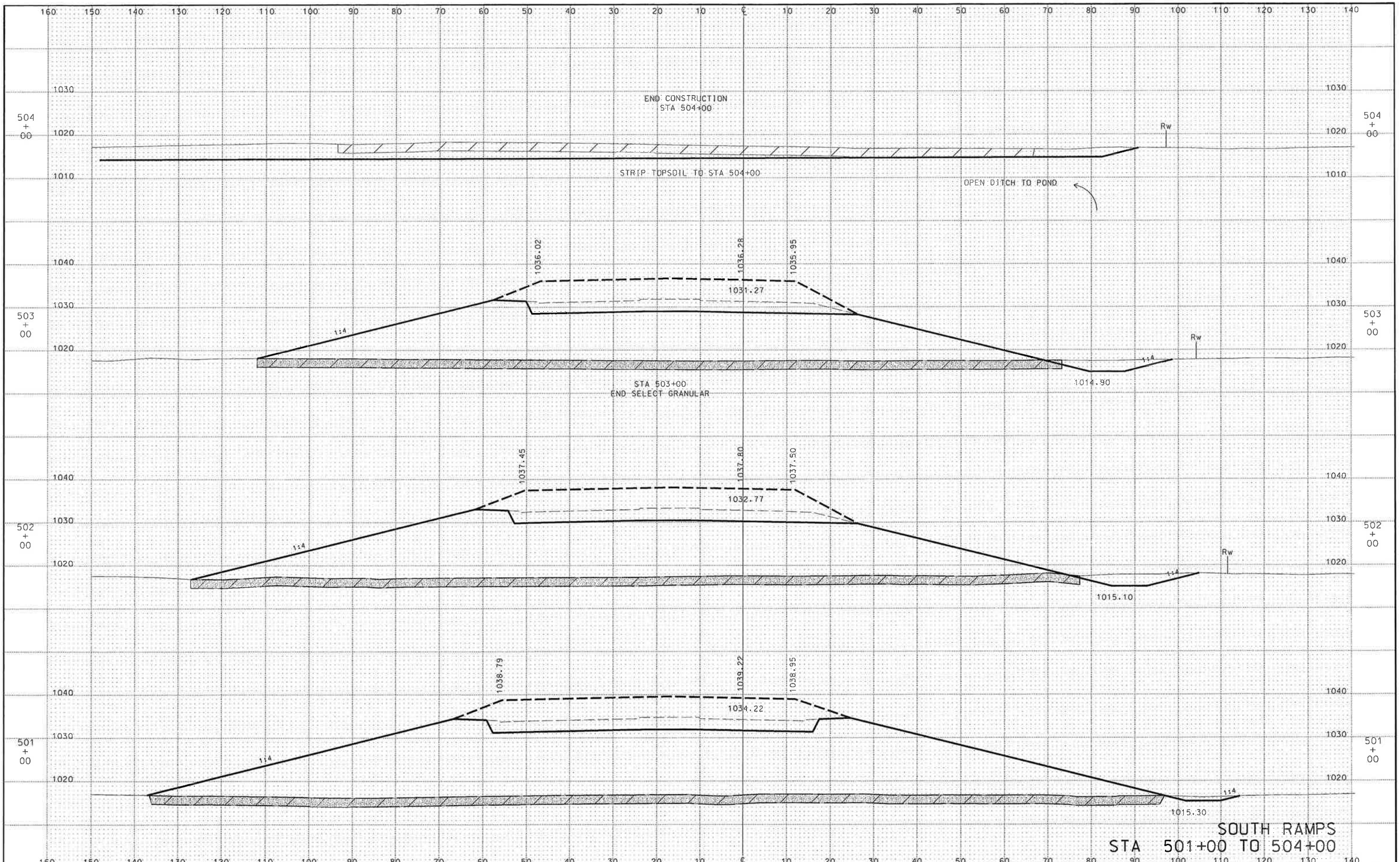
.../Grading 2011/Xsec12.dgn 5/20/2011 2:43:11 PM



SP 0702 - 116A (TH 14) CSAH 12 SP 07-612-19 SHEET 38 OF 40 SHEETS

.../Grading 2011/Xsec13.dgn 5/20/2011 2:43:48 PM


83 + 00
1031.87
1031.87
1032.41
4.0:1
82 + 50
1037.58
1037.92
1037.92
1037.46
1033.45
1032.92
1032.92
4.0:1
82 + 00
1038.62
1038.96
1038.96
1038.51
1034.49
1033.96
1033.96
4.0:1
81 + 50
1039.62
1039.96
1039.96
1039.51
1035.49
1034.96
1034.96
4.0:1
STA 81+50 TO 83+00 LT



.../Grading 2011/Xsec15-ramp.dgn 5/20/2011 2:45:08 PM