

SBN FDB SITE WORK

PROJECT 6-7-94B

DRAWING LIST

GENERAL

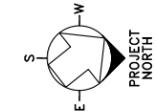
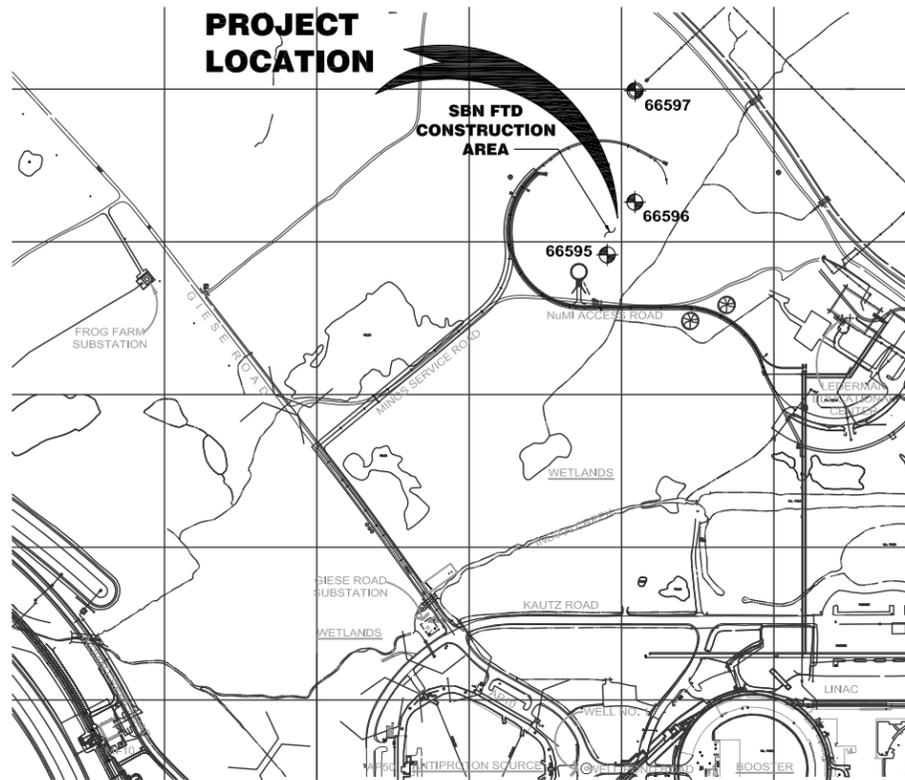
G-1 TITLE SHEET

CIVIL

- C-1 GENERAL CIVIL NOTES AND LEGEND
- C-2 DEMOLITION PLAN AND SPECIAL SEQUENCING
- C-3 SITE PLAN
- C-4 UTILITY PLAN
- C-5 GRADING / DRAINAGE
- C-6 STAGING / EXCAVATION / STORMWATER POLLUTION PREVENTION PLAN
- C-7 STORMWATER POLLUTION PREVENTION PLAN - DETAILS
- C-8 MISC. DETAILS - I
- C-9 MISC. DETAILS - II

ELECTRICAL

- E-1 ELECTRICAL COVER SHEET
- E-2 ELECTRICAL SITE PLAN
- E-3 ONE-LINE DIAGRAM
- E-4 ELECTRICAL DETAILS
- E-5 ELECTRICAL DETAILS



LOCATION PLAN

SCALE 1"=300'-0"

FERMILAB HORIZONTAL & VERTICAL CONTROL POINTS

NOTE: ALL CONTROL POINTS ARE ON "LOCAL" FERMILAB DATUM

THE FOLLOWING CONTROL POINTS ARE PROVIDED BY FERMILAB ALIGNMENT & METROLOGY GROUP AND REQUIRE A SPECIAL THREADED ADAPTOR, AVAILABLE FROM THE ALIGNMENT & METROLOGY GROUP.

POINT NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
66595	98954.1041	98040.2046	749.1087	STEEL PLATE SET IN THE TOP OF A CONCRETE MONUMENT
66596	99045.0242	97867.4731	750.2063	STEEL PLATE SET IN THE TOP OF A CONCRETE MONUMENT
66597	99044.3738	97505.4852	751.6424	STEEL PLATE SET IN THE TOP OF A CONCRETE MONUMENT

LEGEND

--- SITE BOUNDRY LINES

○ ○ ○ ○ ○ ON SITE CONST. ROUTES

HOURS

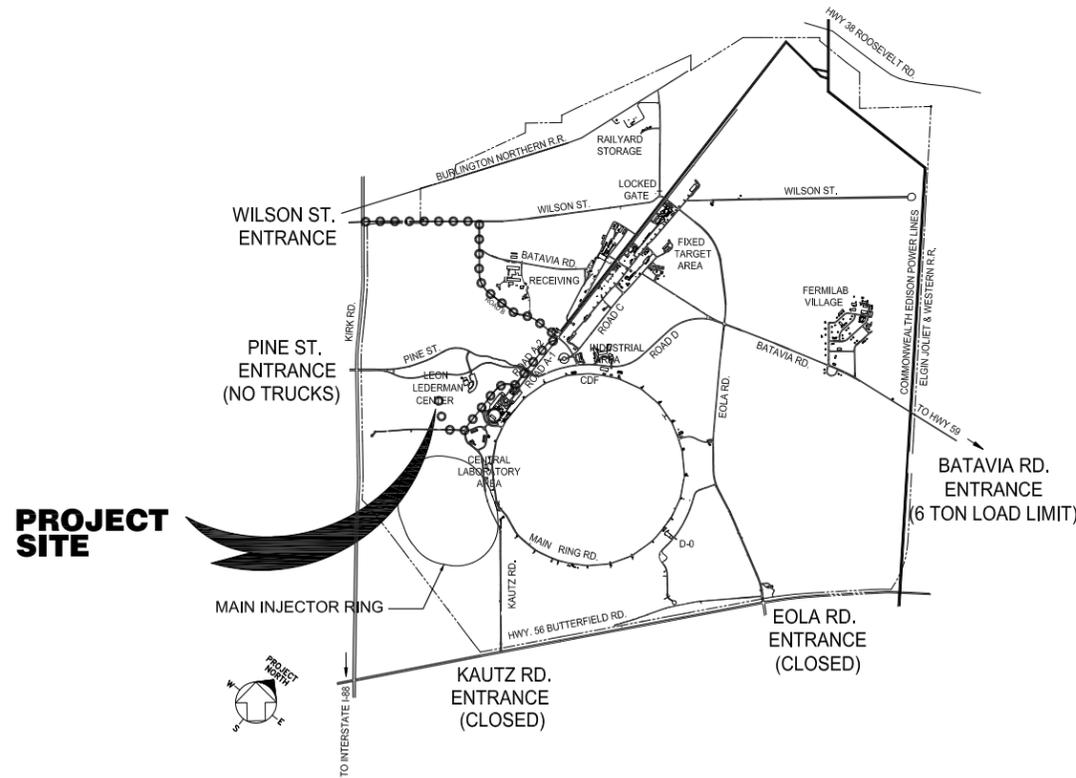
WILSON ST.....6:30 AM TO 3:30 PM (M-F)

PINE ST.....24 HOURS/7 DAYS A WEEK

BATAVIA RD.....6:30 AM TO 11:00 PM (7 DAYS A WEEK)

EOLA RD.

KAUTZ RD.



PROJECT SITE



VICINITY PLAN

SCALE 1"=3000'-0"

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KJ ENGINEERING CONSULTANTS
WW 180 WILSONVILLE ROAD, SUITE 400
WILSONVILLE, IL 60093
630.272.2200 FAX 630.272.2201
www.kjw.com
PROJECT 6-7-94B

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REFERENCE SCALE IN INCHES
0 1 2 3



CRAWFORD, MURPHY & TILLY, INC.
CONSULTING ENGINEERS

550 NORTH COMMONS DRIVE
SUITE 116
AURORA, ILLINOIS
60504
(630) 820-1022
(630) 820-0350 FAX

	NAME	DATE
DESIGNED	A.KUCHIMANCHI	3-31-2015
DRAWN	A.KUCHIMANCHI	3-31-2015
CHECKED	T.O'GRADY	3-31-2015
APPROVED		
SUBMITTED		

SCALE:

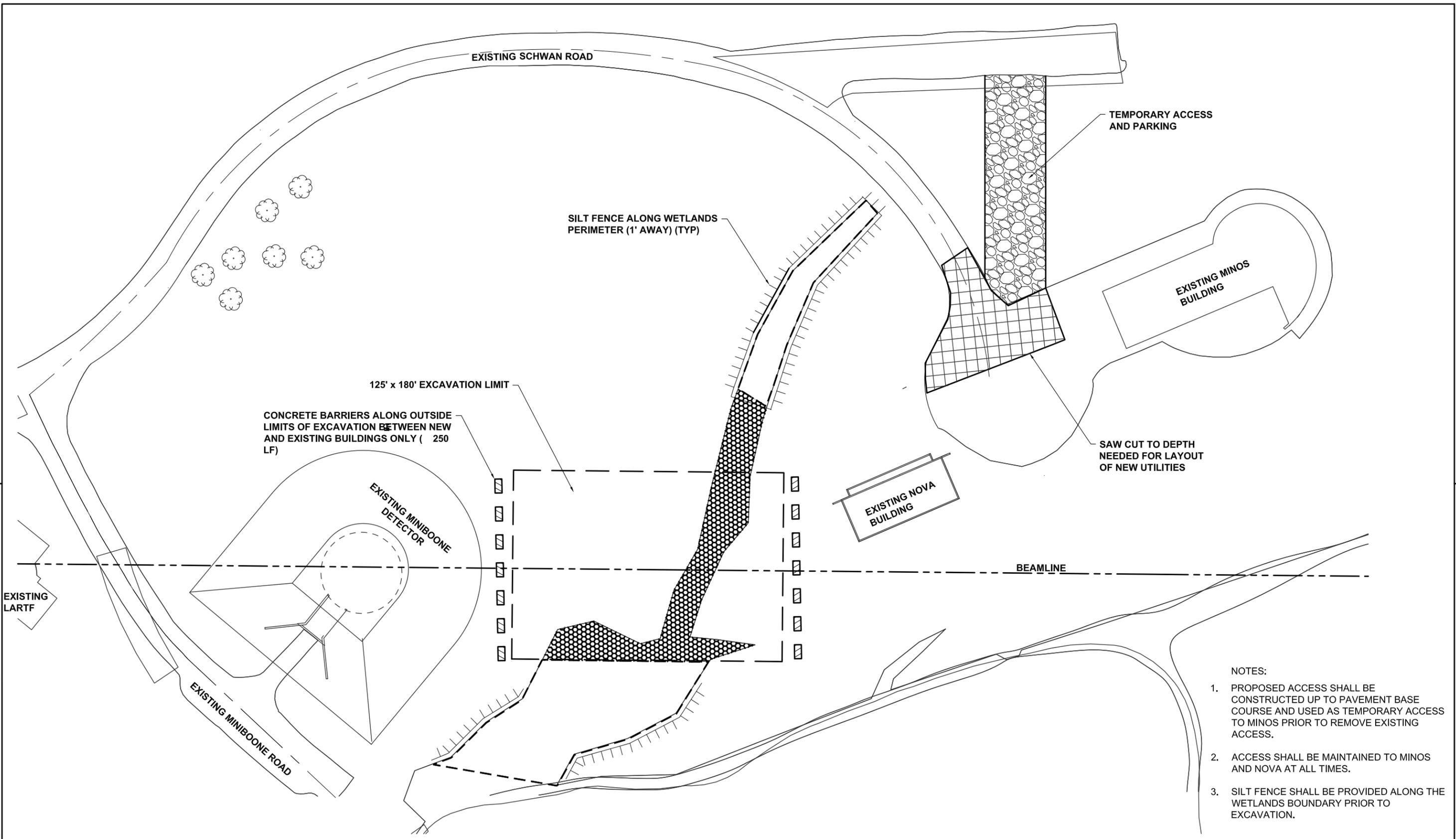


FERMI NATIONAL ACCELERATOR LABORATORY

UNITED STATES DEPARTMENT OF ENERGY

SBN FDB SITE WORK
TITLE SHEET

DRAWING NO. **6-7-94B** **G-1** REV.



- NOTES:
1. PROPOSED ACCESS SHALL BE CONSTRUCTED UP TO PAVEMENT BASE COURSE AND USED AS TEMPORARY ACCESS TO MINOS PRIOR TO REMOVE EXISTING ACCESS.
 2. ACCESS SHALL BE MAINTAINED TO MINOS AND NOVA AT ALL TIMES.
 3. SILT FENCE SHALL BE PROVIDED ALONG THE WETLANDS BOUNDARY PRIOR TO EXCAVATION.

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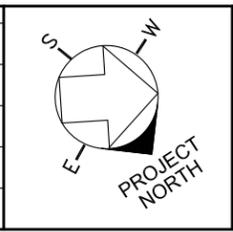
REV.	DATE	DESCRIPTIONS
	3/31/15	ISSUED FOR PROPOSALS
		REVISIONS



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 550 NORTH COMMONS DRIVE
 SUITE 116
 AURORA, ILLINOIS
 60504
 (630) 820-1022
 (630) 820-0350 FAX

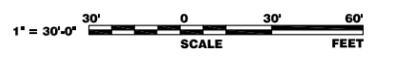
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SCALE:

1" = 30'-0"



SCALE FEET

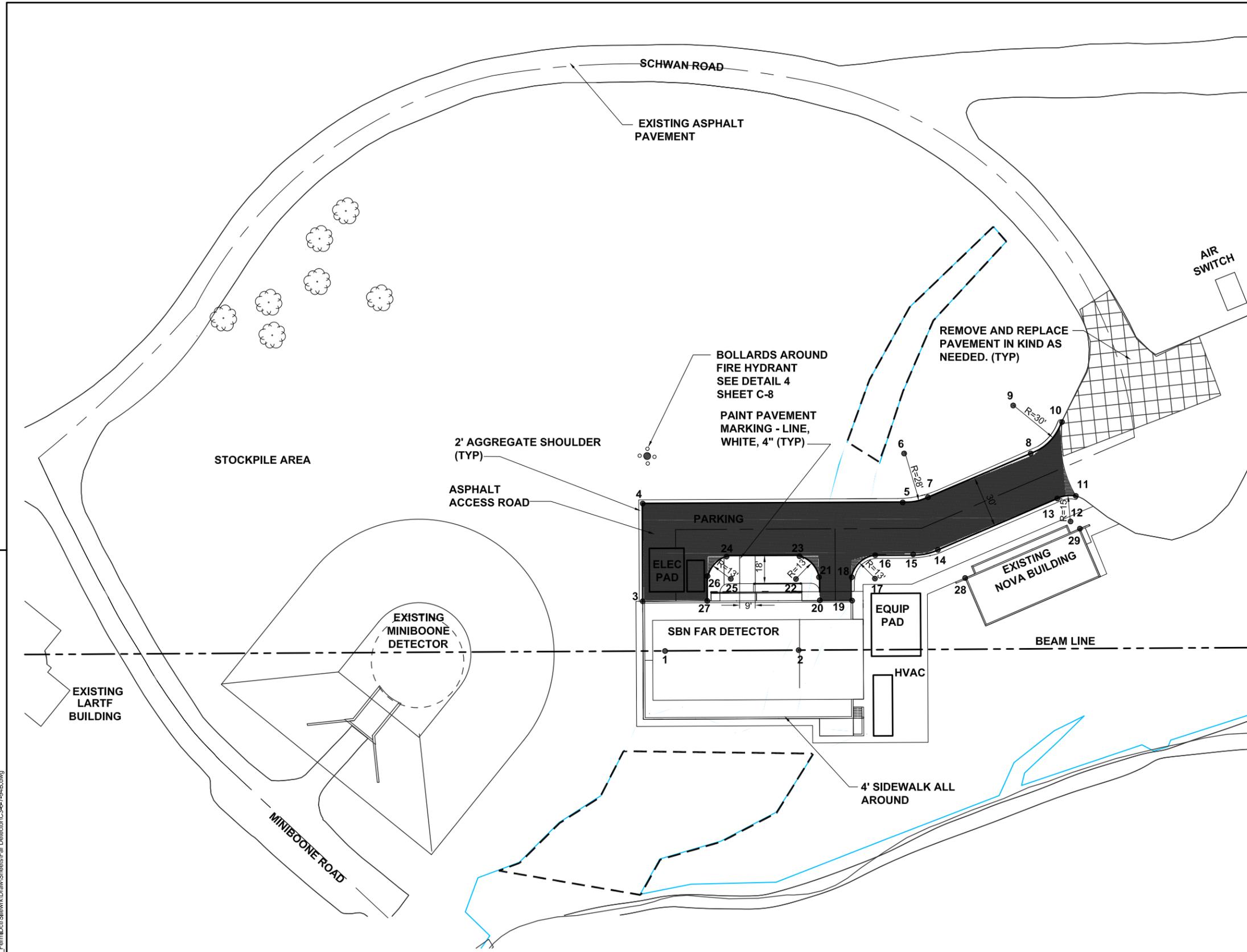
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**SBN FDB SITE WORK
 DEMOLITION PLAN AND
 SPECIAL SEQUENCING**

DRAWING NO. **6-7-94B** **C-2** REV.

31 MARCH 2015



HORIZONTAL CONTROL TABLE				
POINT NO.	NORTHING	EASTING	ELEV.	DESCRIPTION
1	98966.978	98003.186		BEAM LINE
2	99026.598	97954.430		BEAM LINE
3	98938.989	97989.000		EOP, SIDEWALK
4	98903.693	97945.274		EOP, SIDEWALK
5	99019.961	97850.613		EOP, PC
6	99002.910	97828.203		RADIUS POINT
7	99029.410	97839.110		EOP, PT
8	99059.692	97782.365		EOP, PC
9	99034.521	97767.241		RADIUS POINT
10	99062.383	97756.951		EOP, PT
11	99095.289	97785.031		EOP, PC
12	99102.142	97798.385		RADIUS POINT
13	99087.933	97792.906		EOP, PT
14	99052.833	97859.126		EOP, PC
15	99043.421	97870.071		EOP, PT
16	99026.654	97884.179		EOP, PC
17	99034.996	97894.779		RADIUS POINT
18	99024.123	97902.545		EOP, PT
19	99032.706	97912.894		EOP, SIDEWALK
20	99018.127	97924.466		EOP
21	99009.392	97914.381		EOP, PC
22	98999.726	97923.572		RADIUS POINT
23	98993.070	97912.092		EOP, PT
24	98960.460	97938.653		EOP, PC
25	98970.412	97947.071		RADIUS POINT
26	98958.991	97954.276		EOP, PT
27	98967.808	97965.458		EOP
28	99075.260	97861.850		EOP (NOVA)
29	99108.936	97798.211		EOP (NOVA)

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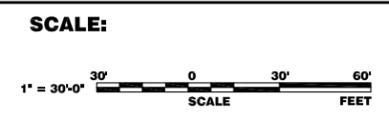
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UNITED STATES DEPARTMENT OF ENERGY

SBN FDB SITE WORK
SITE PLAN

DRAWING NO. **6-7-94B** **C-3** REV.

31 MARCH 2015

INSTALL NEW 6" GATE VALVE WITH POST INDICATOR SEE DETAIL 6 ON DWG. C-8

INSTALL NEW 6" TEE TO CONNECT TO EXISTING ICW

INSTALL NEW SADDLE, 2.5" SERVICE TAP, GATE VALVE AND VALVE BOX SEE DETAIL 2 ON DWG. C-8

INSTALL 350 LF OF NEW 2.5" HDPE DWS WATER SERVICE

INSTALL NEW 6" TEE 6 LF OF 6" PVC PIPE, FIRE HYDRANT, AUXILIARY VALVE AND BOX SEE DETAIL 7 ON DWG. C-8

INSTALL NEW 2.5" 45° BEND - HDPE BUTT FUSION FITTING

EXISTING COMMUNICATION MANHOLE

INSTALL 280 LF OF NEW 2.5" DIA PVC CONDUITS CONCRETE ENCASED COMMUNICATION DUCTS

INSTALL 350 LF OF NEW 6" PVC C-900 DR-18 ICW WATERMAIN

INSTALL NEW 6" 45° DIP BEND

HANDHOLE (TYP) SEE DETAIL ON DWG. C-9

NEW SEPTIC TANK

INSTALL 360 LF OF NEW 2.5" DIA PVC CONDUITS CONCRETE ENCASED POWER DUCTS

INSTALL 350 LF OF NEW 1-1/4" GAS MAIN

AIR SWITCH SEE DWG. E-2

CONNECT TO EXISTING GAS. SEE VALVE BOX DETAIL X, DWG. X-X

AREA STOCKPILE

ELECTRICAL PAD

PARKING

NEW SBN FAR DETECTOR

EQUIP PAD

NOVA BUILDING

HVAC

BEAM LINE

MINOS BLDG.

MINIBOONE DETECTOR

NUM TUNNEL BELOW
MINIBOONE ROAD

EXISTING COMMUNICATION DUCT TO BE PROTECTED DURING CONSTRUCTION

NOTE:

1. ALL NON DIP WATER MAIN SHALL BE INSTALLED WITH TRACER WIRE.
2. TERMINATE TRACER WIRE AT TRACER BOX.
3. INSTALL CATHODIC PROTECTION AT EVERY DIP FITTING OR PIPE SECTION. SEE DETAIL 3, DWG. C-8.
4. DEPTH OF NEW ICW AND DWS WATER MAIN SHALL BE AT LEAST 5'-6" BELOW GROUND TO TOP OF WATER LINE.
5. MITIGATED WETLANDS NOT SHOWN FOR CLARITY. SEE DWG C-2 FOR LIMITS.

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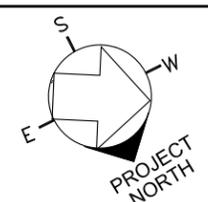
REV.	DATE	DESCRIPTIONS
		REVISIONS
	3/31/15	ISSUED FOR PROPOSALS
2	1-26-15	ISSUED FOR 60% REVIEW
1	12-23-14	SCHEMATIC DESIGN



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SCALE:



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UNITED STATES DEPARTMENT OF ENERGY



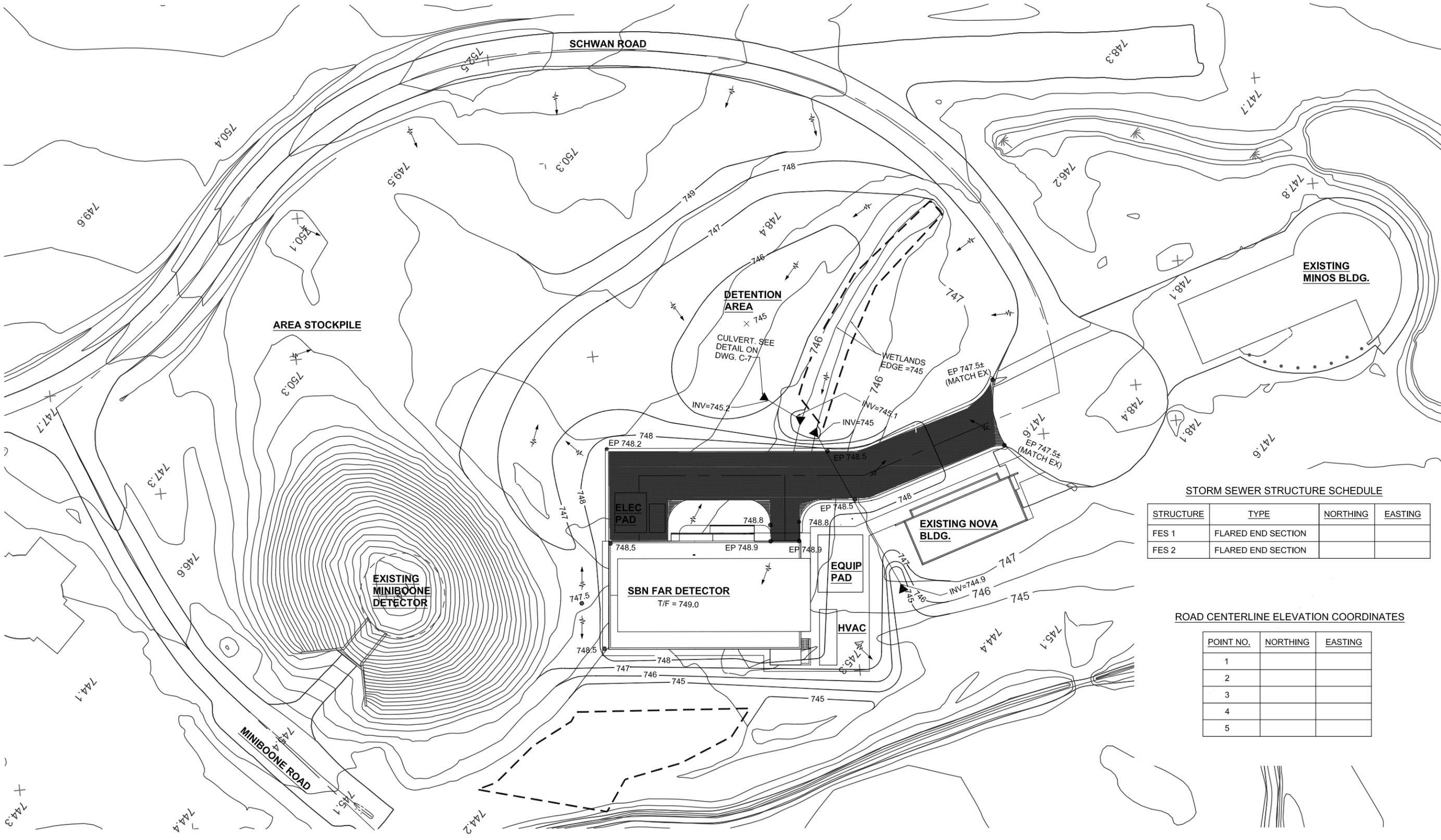
SBN FDB SITE WORK
UTILITY PLAN

DRAWING NO. 6-7-94B

C-4 REV.

31 MARCH 2015

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STORM SEWER STRUCTURE SCHEDULE

STRUCTURE	TYPE	NORTHING	EASTING
FES 1	FLARED END SECTION		
FES 2	FLARED END SECTION		

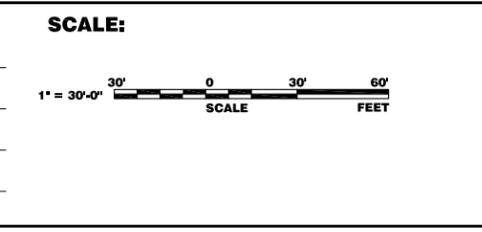
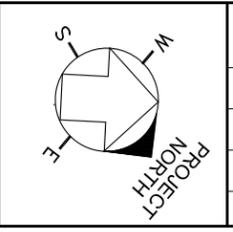
ROAD CENTERLINE ELEVATION COORDINATES

POINT NO.	NORTHING	EASTING
1		
2		
3		
4		
5		

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SBN FDB SITE WORK
GRADING AND DRAINAGE

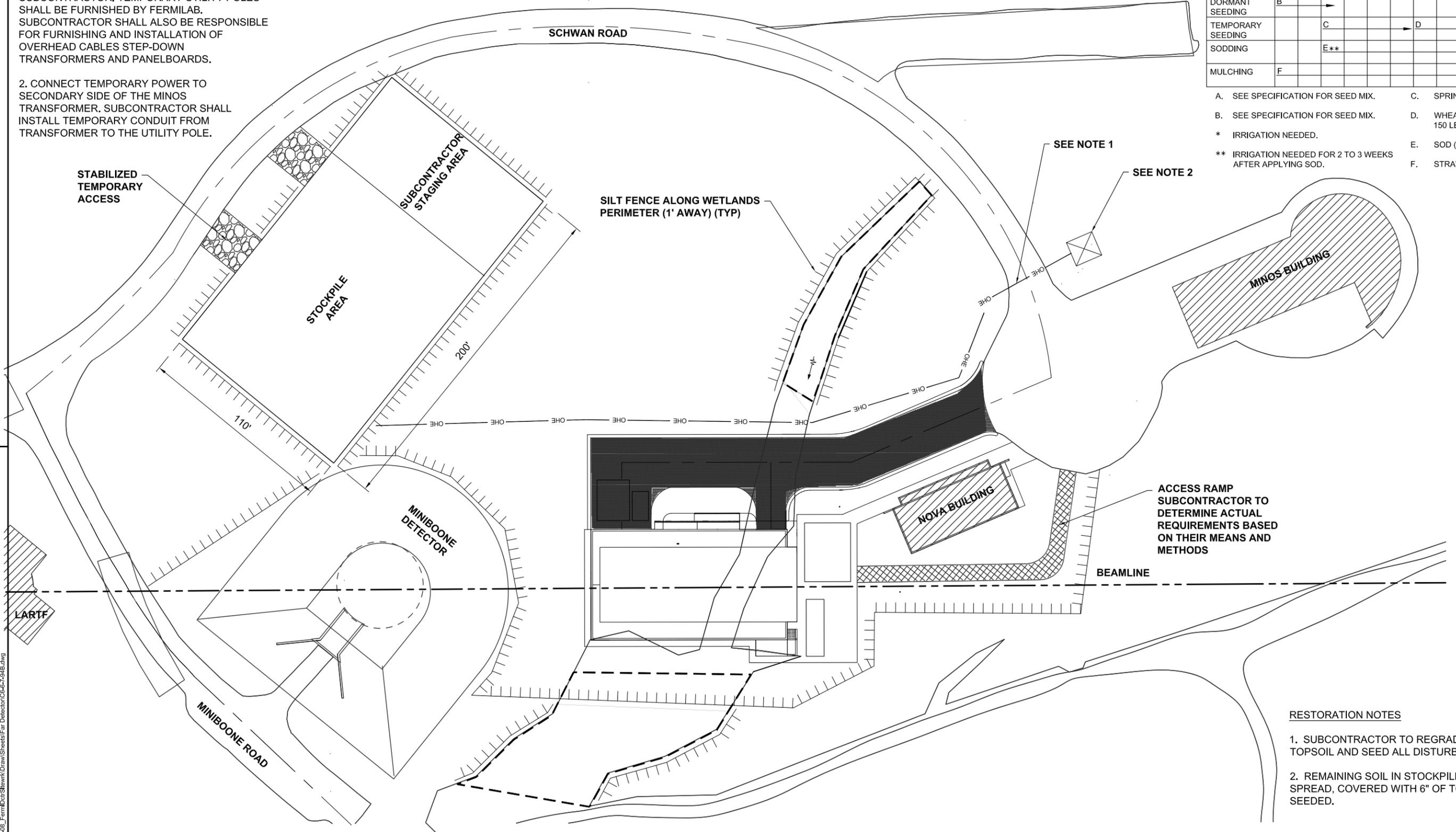
DRAWING NO. **6-7-94B** **C-5** REV.

31 MARCH 2015

NOTES:

1. TEMPORARY OVERHEAD ELECTRIC SERVICE (480V, 3-PHASE) WILL BE INSTALLED BY THE SUBCONTRACTOR. TEMPORARY UTILITY POLES SHALL BE FURNISHED BY FERMILAB. SUBCONTRACTOR SHALL ALSO BE RESPONSIBLE FOR FURNISHING AND INSTALLATION OF OVERHEAD CABLES STEP-DOWN TRANSFORMERS AND PANELBOARDS.

2. CONNECT TEMPORARY POWER TO SECONDARY SIDE OF THE MINOS TRANSFORMER. SUBCONTRACTOR SHALL INSTALL TEMPORARY CONDUIT FROM TRANSFORMER TO THE UTILITY POLE.



SOIL PROTECTION CHART

STABILIZATION TYPE	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
PERMANENT SEEDING			A			*	*	*	*	*		
DORMANT SEEDING	B										B	
TEMPORARY SEEDING			C				D					
SODDING			E**									
MULCHING	F											

- A. SEE SPECIFICATION FOR SEED MIX.
- B. SEE SPECIFICATION FOR SEED MIX.
- * IRRIGATION NEEDED.
- ** IRRIGATION NEEDED FOR 2 TO 3 WEEKS AFTER APPLYING SOD.
- C. SPRING OATS 100 LBS/ACRE.
- D. WHEAT OR CEREAL RYE 150 LBS/ACRE.
- E. SOD (NOT APPLICABLE)
- F. STRAW MULCH 2 TONS/ACRE.

RESTORATION NOTES

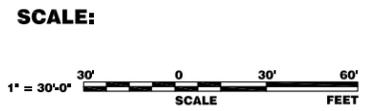
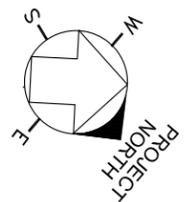
1. SUBCONTRACTOR TO REGRADE, PLACE 6" OF TOPSOIL AND SEED ALL DISTURBED AREAS.
2. REMAINING SOIL IN STOCKPILE AREA SHALL BE SPREAD, COVERED WITH 6" OF TOPSOIL AND SEEDED.

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 CRAWFORD, MURPHY & TILLY, INC.
 CONSULTING ENGINEERS

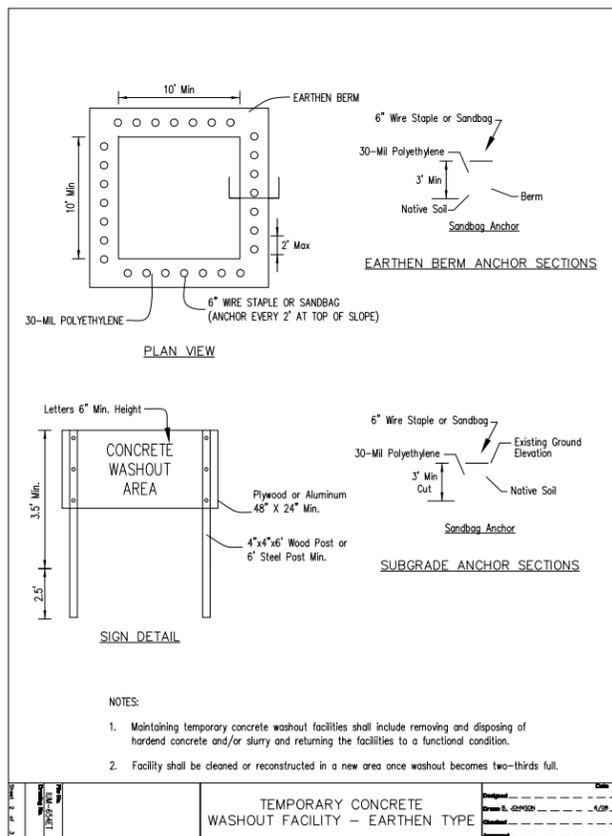
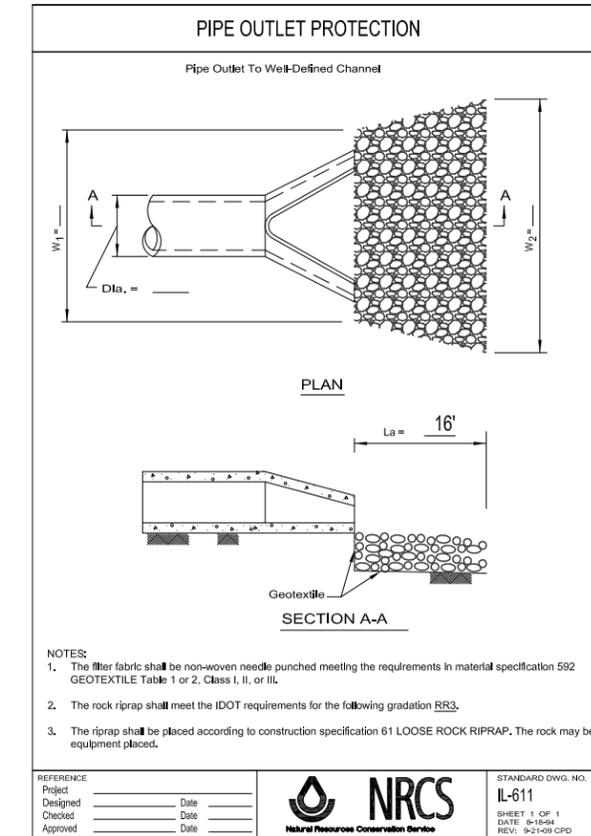
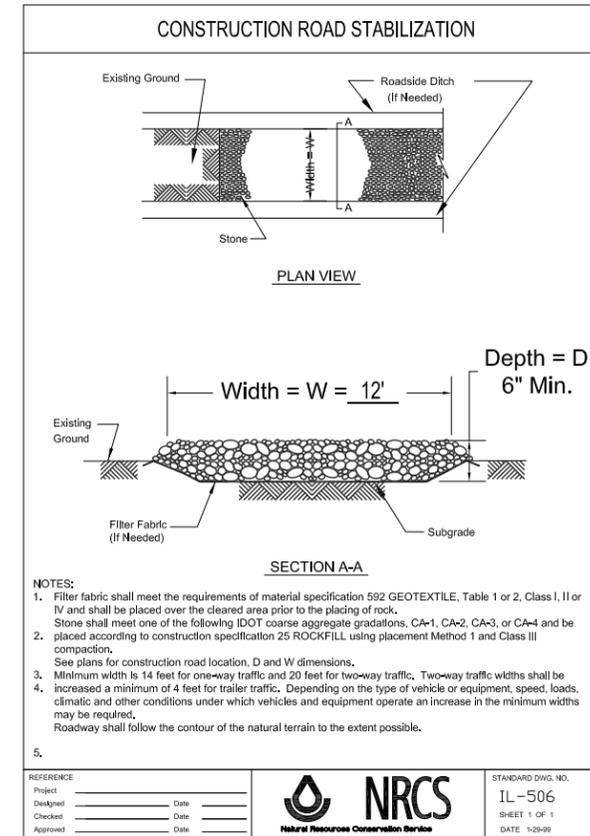
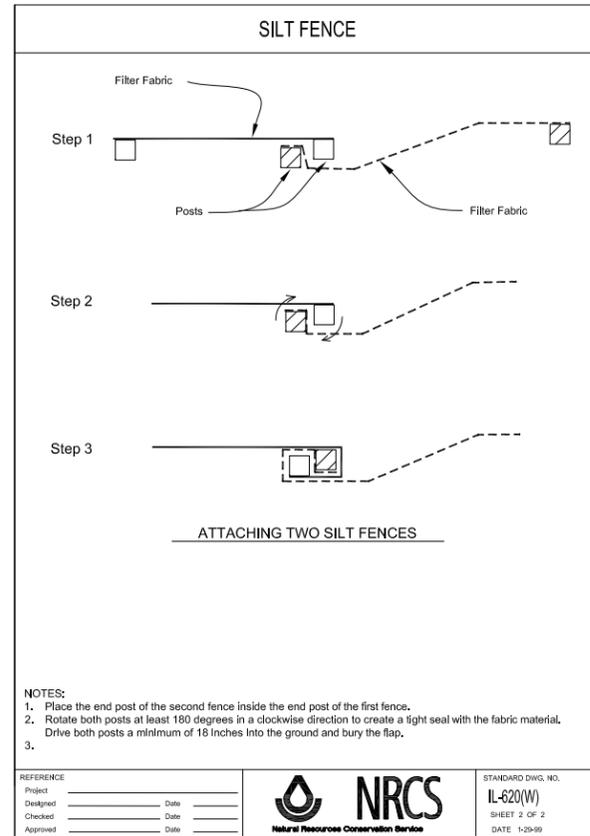
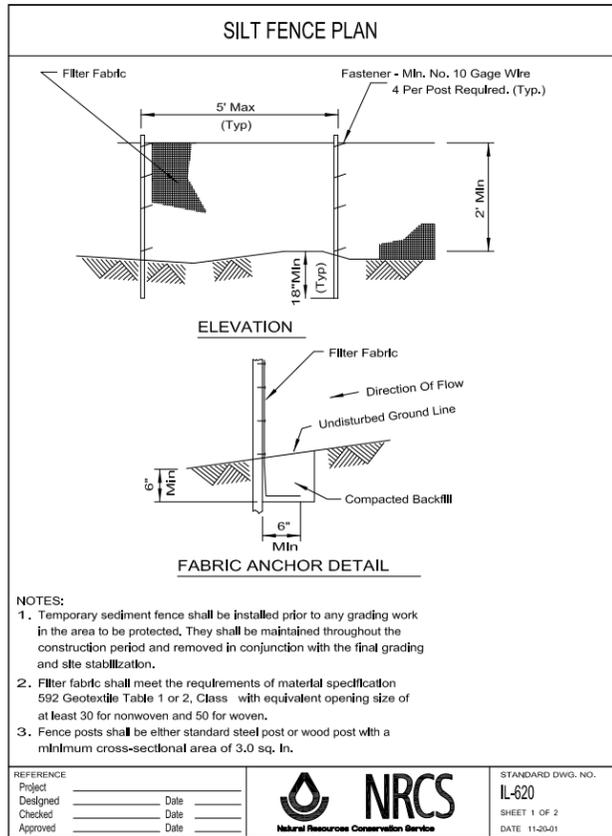
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 UNITED STATES DEPARTMENT OF ENERGY

SBN FDB SITE WORK
STAGING/ EXCAVATION/STORMWATER POLLUTION PREVENTION PLAN
 DRAWING NO. **6-7-94B** **C-6** REV.

31 MARCH 2015



- NOTES:**
1. UNLESS OTHERWISE INDICATED, ALL VEGETATIVE AND STRUCTURAL EROSION AND SEDIMENT CONTROL PRACTICES WILL BE CONSTRUCTED ACCORDING TO MINIMUM STANDARDS AND SPECIFICATIONS IN THE ILLINOIS URBAN MANUAL, CURRENT EDITION.
 2. A COPY OF THE APPROVED EROSION AND SEDIMENT CONTROL PLAN SHALL BE MAINTAINED ON THE SITE AT ALL TIMES. THE SUBCONTRACTOR IS RESPONSIBLE FOR INSTALLATION OF ANY ADDITIONAL EROSION CONTROL MEASURES NECESSARY TO PREVENT EROSION AND SEDIMENTATION AS DETERMINED BY FERMI/FCC.
 3. PRIOR TO COMMENCING LAND-DISTURBING ACTIVITIES IN AREAS OTHER THAN INDICATED ON THESE PLANS (INCLUDING BUT NOT LIMITED TO, ADDITIONAL PHASES OF DEVELOPMENT AND OFF-SITE BORRO OR WASTE AREAS) A SUPPLEMENTARY EROSION CONTROL PLAN SHALL BE SUBMITTED FOR REVIEW BY KDSWCD THRU FERMI.
 4. SUBCONTRACTOR SHALL CLEAN EXISTING ROADWAY AT THE END OF EACH WORK DAY TO REMOVE ANY DIRT, MUD, OR DEBRIS THAT HAS ACCUMULATED DURING CONSTRUCTION OPERATIONS. COST SHALL BE INCIDENTAL TO THE PROJECT.
 5. DURING DEWATERING OPERATIONS, WATER SHALL BE PUMPED INTO SEDIMENT BASINS OR SILT TRAPS. DEWATERING DIRECTLY INTO DITCHES/FIELD TILES OR STORMWATER STRUCTURES IS PROHIBITED.
 6. ALL EROSION CONTROL MEASURES MUST BE INSPECTED WEEKLY AND AFTER EACH 1/2" RAIN EVENT.
 7. THE CONDITION OF THE CONSTRUCTION SITE FOR WINTER SHUTDOWN SHALL BE ADDRESSED EARLY IN THE FALL GROWING SEASON SO THAT SLOPES AND OTHER BARE EARTH AREAS MAY BE STABILIZED WITH TEMPORARY AND/OR PERMANENT VEGETATIVE COVER FOR PROPER EROSION AND SEDIMENT CONTROL. ALL OPEN AREAS THAT ARE TO REMAIN IDLE THROUGHOUT THE WINTER SHALL RECEIVE TEMPORARY EROSION CONTROL MEASURES INCLUDING TEMPORARY SEEDING, MULCHING AND/OR EROSION CONTROL BLANKET PRIOR TO THE END OF THE FALL GROWING SEASON. THE AREAS TO BE WORKED BEYOND THE END OF THE GROWING SEASON MUST INCORPORATE SOIL STABILIZATION MEASURES THAT DO NOT RELY ON VEGETATIVE COVER SUCH AS EROSION CONTROL BLANKET AND HEAVY MULCHING.
 8. STOCKPILES OF SOIL AND OTHER BUILDING MATERIALS TO REMAIN IN PLACE MORE THAN THREE (3) DAYS SHALL BE FURNISHED WITH EROSION AND SEDIMENT CONTROL MEASURES (I.E. PERIMETER SILT FENCE). STOCKPILES TO REMAIN IN PLACE FOR 14 DAYS OR MORE SHALL RECEIVE TEMPORARY SEEDING.
 9. IN AREAS WHERE WORK IS COMPLETE, PERMANENT STABILIZATION SHALL OCCUR WITHIN 7 DAYS OF COMPLETION, AND IN AREAS WHERE WORK HAS TEMPORARILY CEASED FOR 14 DAYS OR MORE, TEMPORARY STABILIZATION SHALL OCCUR BY THE 14TH DAY AFTER WORK HAS CEASED.
 10. FINAL STABILIZATION MUST BE COMPLETED WITHIN 7 DAYS OF FINAL GRADING.
 11. PERIMETER SILT FENCE MUST REMAIN IN PLACE AND MAINTAINED THROUGHOUT THE PROJECT UNTIL VEGETATION HAS BEEN ESTABLISHED.
 12. IT IS THE RESPONSIBILITY OF THE GENERAL SUBCONTRACTOR TO INFORM ANY SUB-SUBCONTRACTOR(S) WHO MAY PERFORM WORK ON THIS PROJECT, OF THE REQUIREMENTS IN IMPLEMENTING AND MAINTAINING THESE EROSION CONTROL PLANS AND THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT REQUIREMENTS SET FORTH BY THE ILLINOIS EPA.
 13. STABILIZATION OF DISTURBED AREAS MUST BE INITIATED WITHIN 1 WORKING DAY OF PERMANENT OR TEMPORARY CESSATION OF EARTH DISTURBING ACTIVITIES AND SHALL BE COMPLETED AS SOON AS POSSIBLE BUT NOT LATER THAN 14 DAYS FROM THE INITIATION OF THE STABILIZATION WORK IN AN AREA.
 14. THE PRIMARY PURPOSE OF ALL SOIL EROSION AND SEDIMENT CONTROL BMP'S (BEST MANAGEMENT PRACTICES) IS TO PREVENT SEDIMENT FROM LEAVING THE SITE. ALL STORMWATER DISCHARGE LOCATIONS WITH A DIRECT CONNECTION TO THE SITE SHOULD BE MONITORED CLOSELY FOR EVIDENCE OF SEDIMENT. FERMI MAY REQUEST THAT ADDITIONAL BMP'S BE INSTALLED IN THE EVENT OF OFF-SITE SEDIMENT DISCHARGE OR HIGH POTENTIAL FOR DISCHARGE.
 15. THE KANE-DUPAGE SOIL AND WATER CONSERVATION DISTRICT (KDSWCD) MUST BE NOTIFIED ONE WEEK PRIOR TO THE PRE-CONSTRUCTION CONFERENCE, ONE WEEK PRIOR TO THE COMMENCEMENT OF LAND DISTURBING ACTIVITIES, AND ONE WEEK PRIOR TO THE FINAL INSPECTION.
 16. AT A MINIMUM THE SUB-CONTRACTOR SHALL PLACE TWO RUNS OF EROSION CONTROL FABRIC FENCE BETWEEN THE WORK AREA AND ANY STREAM, WETLAND OR WETLAND BUFFER, FLOODPLAIN, RIPARIAN AREA, DRAINAGE WAY, SWALE OR POND. ADDITIONALLY, THE SUB-CONTRACTOR SHALL PROVIDE AROUND ALL INLETS, END SECTIONS AND OTHER DRAINAGE PIPES AN ENCLOSURE OF SUITABLE TEMPORARY EROSION CONTROL MEASURES TO PREVENT CLODS OF DIRT, ROCK AND OTHER DEBRIS FROM ENTERING INTO THE DRAIN WAYS NEAR THE CONSTRUCTION ACTIVITIES.

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REV.	DATE	DESCRIPTIONS

CMT

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CHECKED T. O'GRADY	
APPROVED	
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PROJECT NORTH

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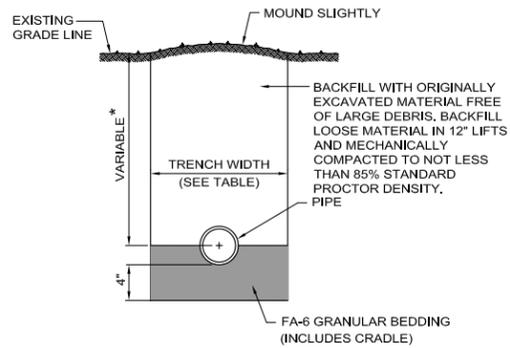
UNITED STATES DEPARTMENT OF ENERGY

SBN NDB SITE WORK

STORMWATER POLLUTION PREVENTION PLAN DETAILS

DRAWING NO. **6-7-94A** **C-7** REV.

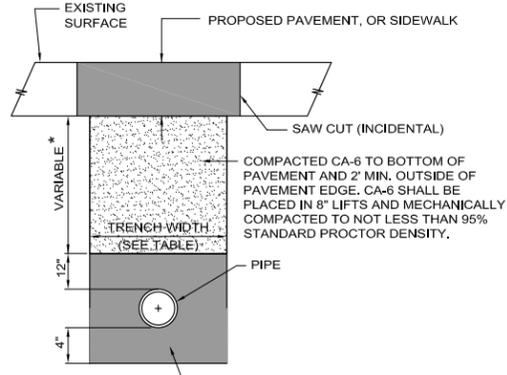
31 MARCH 2015



NON-PAVED AREAS

* 5'-6" MIN. COVER FOR I.C.W. PIPING

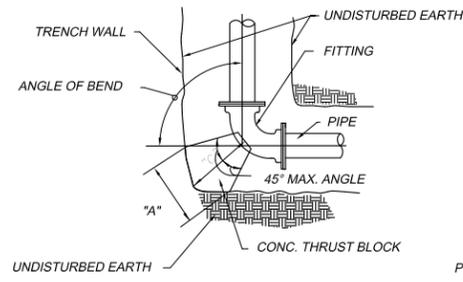
TRENCH DETAILS



ALL PAVED AREAS

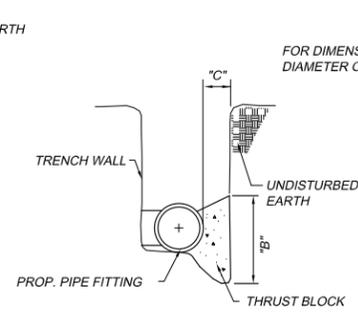
INSIDE DIAMETER OF PIPE (INCHES)	MAXIMUM TRENCH WIDTH
6	3'-7"
8	3'-9"
12	4'-2"
14	4'-4"
15	4'-6"
18	4'-9"
21	5'-0"
24	5'-4"
27	5'-7"
30	5'-11"
36	6'-6"

NOTE:
1. CONTRACTOR SHALL PROVIDE TRENCH SUPPORT FOR ALL ROADWAYS.



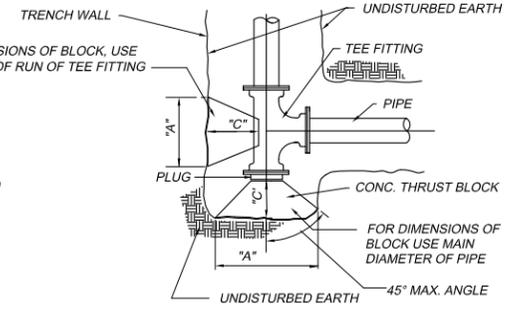
PLAN OF BEND

N.T.S.



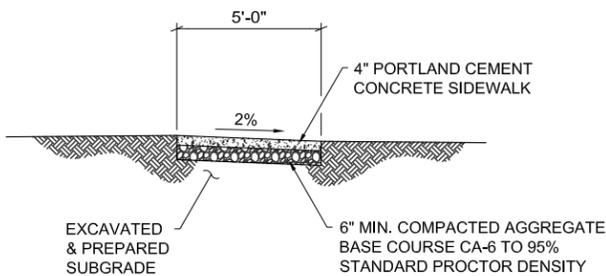
SECTION

N.T.S.



PLAN OF TEE

N.T.S.

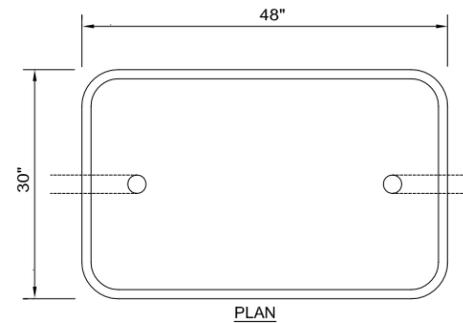


TYPICAL SIDEWALK DETAIL

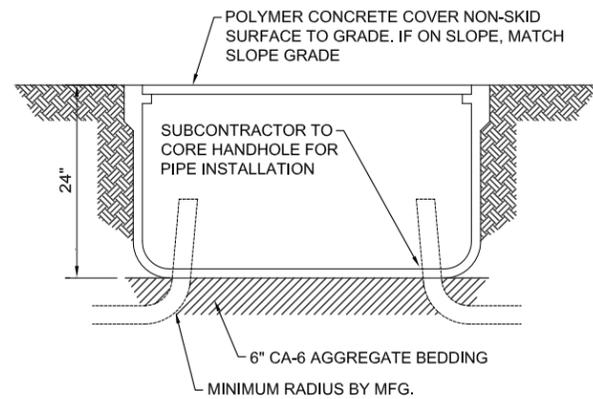
N.T.S.

NOTE:
COMPACTED AGGREGATE TO BE CRUSHED GRAVEL, CLASS C OR BETTER, IN ACCORDANCE WITH IDOT SPECIFICATION 1004.

MINIMUM 10K LOAD RATED POLYMER SPLICE BOX AS MANUFACTURED BY ARMORCAST, ELECTRIMOLD OR APPROVED EQUAL



PLAN



SECTION

HANDHOLE

N.T.S.

NOTE:

EXCAVATION BACKFILL COMPACTED TO 95% DENSITY

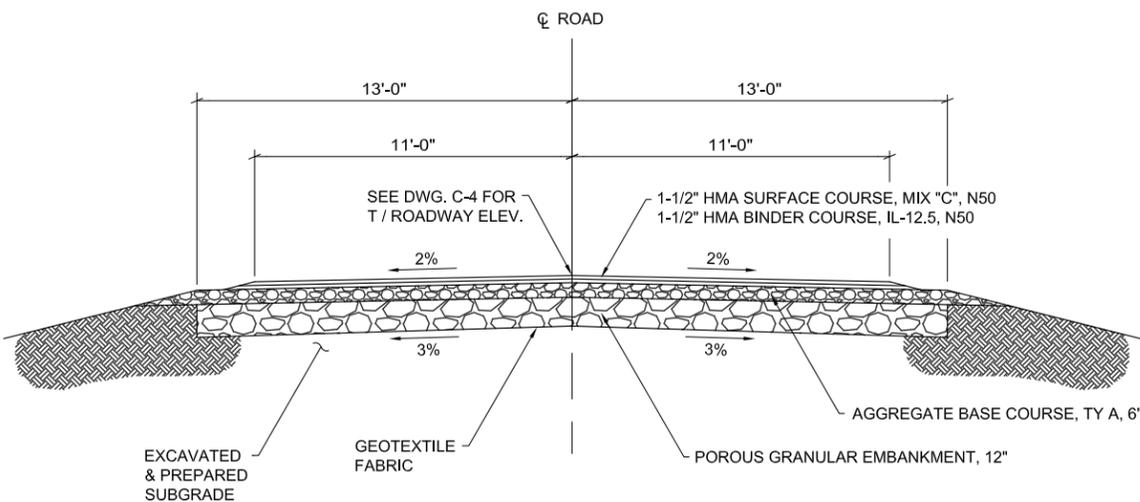
100 P.S.I. TABLE

SIZE	90° BEND			45° BEND			22-1/2° BEND			11-1/4° BEND			TEE OR PLUG		
	A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
4" & 6"	2'-0"	1'-4"	9"	1'-6"	1'-0"	6"	1'-1"	0'-8"	6"	0'-9"	0'-8"	8"	2'-5"	1'-7"	1'-0"
8"	2'-8"	1'-10"	1'-0"	2'-0"	1'-4"	8"	1'-5"	1'-0"	8"	1'-0"	0'-8"	8"	3'-2"	2'-7"	1'-3"
10"	3'-4"	2'-3"	1'-3"	2'-6"	1'-8"	10"	1'-6"	1'-2"	8"	1'-3"	0'-10"	8"	4'-0"	2'-8"	1'-7"
12"	4'-0"	2'-8"	1'-8"	3'-0"	2'-0"	1'-0"	2'-2"	1'-5"	8"	1'-6"	1'-0"	8"	4'-10"	3'-2"	1'-11"
14"	4'-8"	3'-2"	1'-9"	3'-0"	2'-4"	1'-2"	2'-8"	1'-8"	8"	1'-8"	1'-2"	8"	5'-7"	3'-8"	2'-2"
16"	5'-4"	3'-7"	2'-0"	3'-11"	2'-8"	1'-4"	3'-10"	1'-11"	9"	2'-0"	1'-4"	8"	6'-4"	4'-3"	2'-10"
18"	6'-0"	4'-0"	2'-1"	4'-5"	3'-0"	1'-6"	4'-2"	2'-0"	10"	2'-3"	1'-6"	8"	7'-2"	4'-9"	3'-10"
20"	6'-8"	4'-5"	2'-6"	4'-11"	3'-4"	1'-8"	5'-0"	2'-4"	11"	2'-8"	1'-8"	8"	7'-11"	5'-4"	3'-2"
24"	8'-0"	5'-4"	3'-0"	6'-11"	3'-11"	2'-0"	6'-3"	2'-10"	1'-11"	3'-0"	2'-0"	8"	9'-6"	6'-4"	3'-0"

THRUST BLOCK DETAILS (FOR HORIZONTAL ALIGNMENT)

NOTES:

- ALL BENDS, TEES, PLUGS, FITTINGS OR OTHER SIGNIFICANT CHANGES IN ALIGNMENT SHALL BE BRACED WITH POURED CONCRETE. THRUST BLOCKS FITTINGS WITH RETAINING GLANDS WILL NOT BE ALLOWED.
- "C" DIMENSION SHALL BE AS REQUIRED TO REACH UNDISTURBED EARTH BUT NOT LESS THAN VALUE LISTED IN TABLE.
- DIMENSIONS "A" AND "B" ARE BASED ON INTERNAL PIPE PRESSURE OF 100 P.S.I. AND BEARING ON THE UNDISTURBED SOIL OF 1500 P.S.F.
- "B" = HEIGHT OF THRUST BLOCK
- ALL PLUGS SHALL BE SEPARATED FROM THE CONCRETE THRUST BLOCK BY A LAYER OF 5 MIL PLASTIC SHEET
- ALL POURED CONCRETE SHALL BE 3000 psi @ 28 DAYS.
- IN ADDITION TO THRUST BLOCKING, MECHANICAL JOINT RESTRAINT SHALL BE INSTALLED ON ALL FITTINGS. D.I.P. MECHANICAL JOINT RESTRAINT SHALL BE MEGALUG AS MANUFACTURED BY EBAA IRON OR APPROVED EQUAL. WHEN RESTRAINING HDPE PIPE TO D.I.P. MJ FITTINGS, MECHANICAL JOINT RESTRAINT SHALL BE SERIES 2000PV AS MANUFACTURED BY EBAA IRON OR APPROVED EQUAL.
- NUTS, BOLTS AND THREADED RODS SHALL BE STAINLESS STEEL.

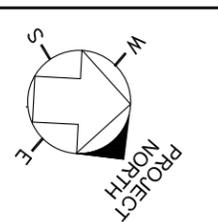


TYPICAL PAVEMENT DETAIL

N.T.S.

NOTE:
COMPACTED AGGREGATE TO BE CRUSHED GRAVEL, CLASS C OR BETTER, IN ACCORDANCE WITH IDOT SPECIFICATION 1004.

	NAME	DATE
DESIGNED	A. KUCHIMANCHI	
DRAWN	A. KUCHIMANCHI	
CHECKED	T. O'GRADY	
APPROVED		
SUBMITTED		



SCALE:

FERMI NATIONAL ACCELERATOR LABORATORY
UNITED STATES DEPARTMENT OF ENERGY

SBN FDB SITE WORK
MISC. DETAILS - II

DRAWING NO. **6-7-94B** **C-9** REV.

Feb 27, 2015 - 4:42pm, L:\Hobart\Draw\Sheets\Fir_Database\C6-7-94B.dwg

31 MARCH 2015

GENERAL ELECTRICAL EQUIPMENT SCHEDULE

THE SYMBOLS AND THE EQUIPMENT SCHEDULE ARE FOR THE CONVENIENCE OF THE CONTRACTOR. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFICATION OF QUANTITIES AND SHALL FURNISH ALL MATERIAL REQUIRED, WHETHER SPECIFIED OR NOT, TO PRODUCE A SATISFACTORY WORKING SYSTEM.

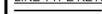
CATALOG NUMBERS SHALL NOT BE CONSIDERED COMPLETE BUT ARE GIVEN ONLY TO AID THE CONTRACTOR IN THE SEARCH FOR MATERIAL. NO MATERIAL SHALL BE ORDERED BY MANUFACTURER AND CATALOG NUMBER ONLY. EACH CONTRACTOR SHALL FIRST READ THE COMPLETE DESCRIPTION OF THE MATERIAL ON THESE DRAWINGS AND SPECIFICATIONS. THE FIRST MANUFACTURER LISTED IS THE BASIS OF DESIGN. "STANDARD COLOR" INDICATES FACTORY FINISH AVAILABLE AT NO ADDITIONAL CHARGE.

ITEM NO.	SYMBOL	DESCRIPTION	APPROVED MANUFACTURERS
1	GEN-SFDB	ENGINE GENERATOR, DIESEL, STAND-BY RATED 100 KW / 125 KVA, UNIT MOUNTED RADIATOR, CRITICAL GRADE SILENCER, BATTERY CHARGER AND HEATER, WEATHERPROOF HOUSING, BLOCK HEATER, BASE MOUNTED FUEL TANK, CAPABLE OF SUPPORTING 1/2 LOAD FOR 24 HRS. RUPTURE BASIN, REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION. CUSTOM PAINT FINISH SELECTION BY FERMLAB.	REFER TO SPECIFICATIONS.
2		DISTRIBUTION TRANSFORMER, LIQUID FILLED, PAD MOUNT WEATHERPROOF ENCLOSURE, DEADFRONT TERMINATIONS. REFER TO SPECIFICATION 16272 AND TRANSFORMER SCHEDULE FOR ADDITIONAL INFORMATION. CUSTOM PAINT FINISH SELECTION BY FERMLAB.	REFER TO TRANSFORMER SCHEDULES.
3	DSTR-SFDB	PAD MOUNT MEDIUM VOLTAGE SWITCH, 15 KV, 600 AMP, 3 PHASE, AIR INTERRUPTER LOAD BREAK TYPE, SINGLE SELF-SUPPORTING WEATHERPROOF ENCLOSURE, EXTERNAL HANDLE OPERATED 3 POLE SWITCHES. REFER TO ONE-LINE AND SPECIFICATION 16215 FOR ADDITION INFORMATION. CUSTOM PAINT FINISH SELECTION BY FERMLAB.	REFER TO SPECIFICATIONS.
4	SC-HH	HANDHOLE, COMPOSITE POLYMER CONCRETE BODY WITH 30" DEPTH AND COVER, VERTICAL DESIGN LOAD OF 8000 LBS AND LATERAL DESIGN LOAD OF 600 LBS/SQ. FT. SIDEWALK APPLICATIONS WITH A SAFETY FACTOR FOR NON DELIBERATE VEHICULAR TRAFFIC. COVER WITH BOLTS AND 8000/12000 DESIGN LOAD.	HUBBELL TIER 8 CARLSON INDUSTRIES ARMORCAST

ELECTRICAL GENERAL NOTES

1. **###-###** INDICATES ELECTRICAL EQUIPMENT DEFINED IN ELECTRICAL SCHEDULES OR SPECIFICATION. REFER TO DRAWINGS CONTAINING ELECTRICAL SCHEDULES. PERMANENT NAMEPLATE SHALL MATCH FINAL EQUIPMENT NOMENCLATURE, NOT ELECTRICAL EQUIPMENT TAG NAME. REFER TO SPECIFICATIONS.

LINE TYPE KEY:

-  NEW WORK BY THIS SUBCONTRACTOR (DARK SOLID LINE)
-  NEW WORK UNDERFLOOR OR UNDERGROUND BY THIS SUBCONTRACTOR (DARK LONG DASHED LINE)
-  NEW WORK BY OTHERS AND/OR EXISTING TO REMAIN (LIGHT SOLID LINE)

ONE LINE DIAGRAM NOTES

1. AIC RATINGS LISTED FOR EQUIPMENT ARE MINIMUM REQUIREMENTS FOR BUS BRACING AND DEVICE RATING. ALL EQUIPMENT SHALL BE FULLY RATED UNLESS SPECIFICALLY NOTED AS SERIES RATED.
2.  INDICATES MEDIUM VOLTAGE TERMINATION.

TRANSFORMER SCHEDULE

TYPE:

- TP1 - NEMA TP 1 DRY TYPE
- K4 - K4 RATED TP 1 DRY TYPE
- K13 - K13 RATED TP 1 DRY TYPE
- PE - NEMA PREMIUM EFFICIENCY
- HM - HARMONIC MITIGATING TP 1

- AUT - AUTOTRANSFORMER
- BB - BUCK-BOOST
- LIQ - LIQUID FILLED

REMARKS:

- AL - ALUMINUM WINDINGS
- CP - COPPER WINDINGS
- RS - EPOXY RESIN ENCAPSULATED
- FL - FILTERED
- NV - NON-VENTILATED
- NL - 200% RATED NEUTRAL
- EL - ELECTROSTATIC SHIELD

ENCLOSURE: NEMA 1 UNLESS SPECIFIED OTHERWISE

ITEM	KVA RATING	TYPE	MAX. TEMP. RISE C.	PRIMARY		SECONDARY		TAPS			REMARKS	APPROVED MANUFACTURERS
				VOLTS	PH	VOLTS	PH	% REG	#(+)	#(-)		
TR-SFDBA	750	LIQ	150	13800	3	480Y/ 277	3	2.5	2	4	CP	COOPER POWER SYSTEMS ABB SQUARE D
TR-SFDBB	225	LIQ	150	13800	3	480Y/ 277	3	2.5	2	4	CP	COOPER POWER SYSTEMS ABB SQUARE D

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REV.	DATE	DESCRIPTION
1	01/26/15	ISSUED FOR 60% REVIEW
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Illinois Design Firm Registration #154-009973

1100 WARRENVILLE ROAD, SUITE 400W
NAPERVILLE, ILLINOIS 60563
630.527.2320 FAX: 630.527.2321
www.kjww.com
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DRAWN	M. WELLS	3/2/2015
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APPROVED		
SUBMITTED		

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UNITED STATES DEPARTMENT OF ENERGY



SBN FDB SITE WORK
ELECTRICAL COVER SHEET

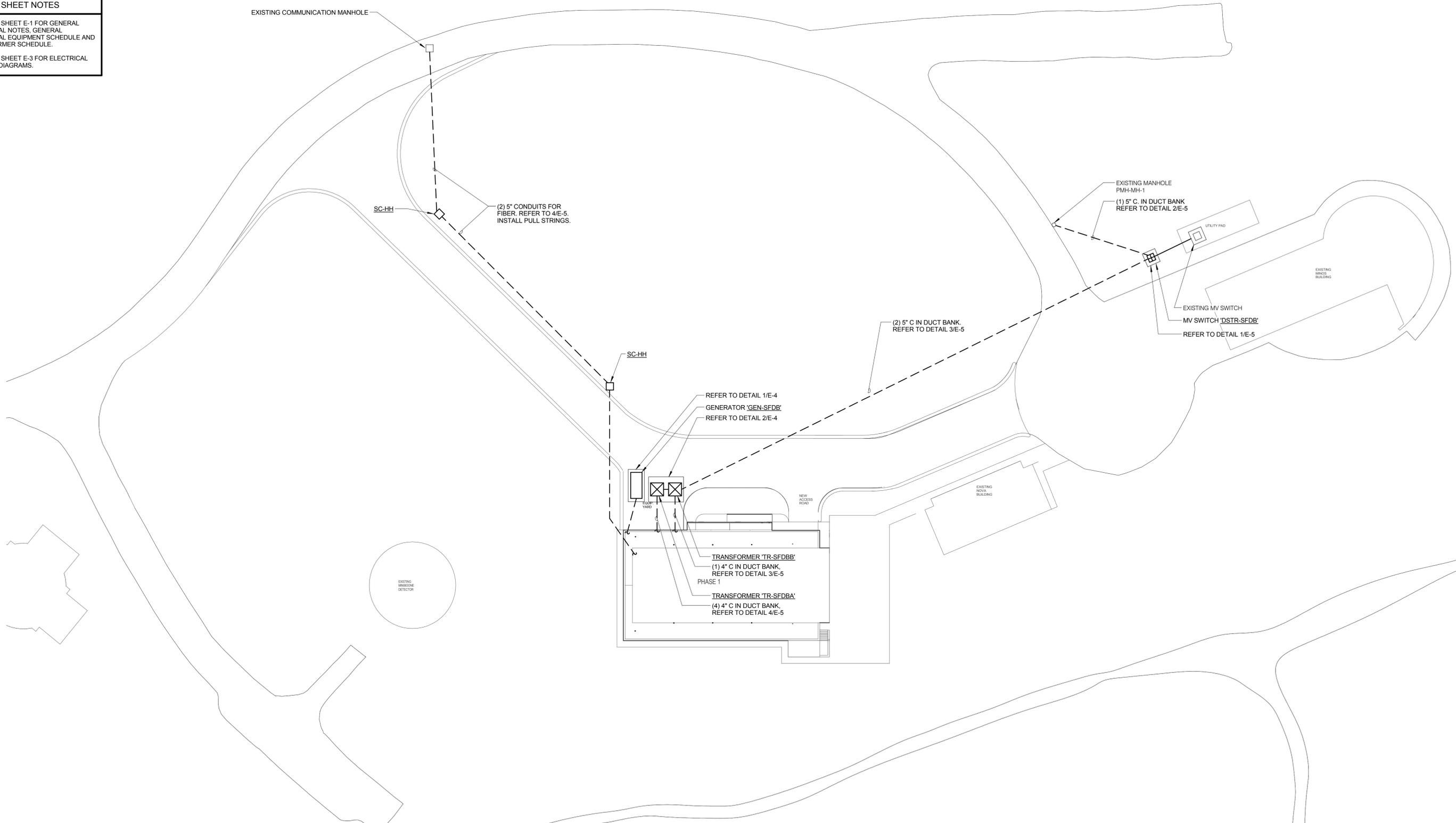
DRAWING NO. **6-7-94B**

E-1 REV.

02 MAR. 2015

GENERAL SHEET NOTES

- REFER TO SHEET E-1 FOR GENERAL ELECTRICAL NOTES, GENERAL ELECTRICAL EQUIPMENT SCHEDULE AND TRANSFORMER SCHEDULE.
- REFER TO SHEET E-3 FOR ELECTRICAL ONE LINE DIAGRAMS.



ELECTRICAL SITE PLAN

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 NAPERVILLE, ILLINOIS 60563
 630.527.2320 FAX: 630.527.2321
 www.kjww.com
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SUBMITTED		

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UNITED STATES DEPARTMENT OF ENERGY



SBN FDB SITE WORK
ELECTRICAL SITE PLAN

DRAWING NO. **6-7-94B**

E-2 REV.

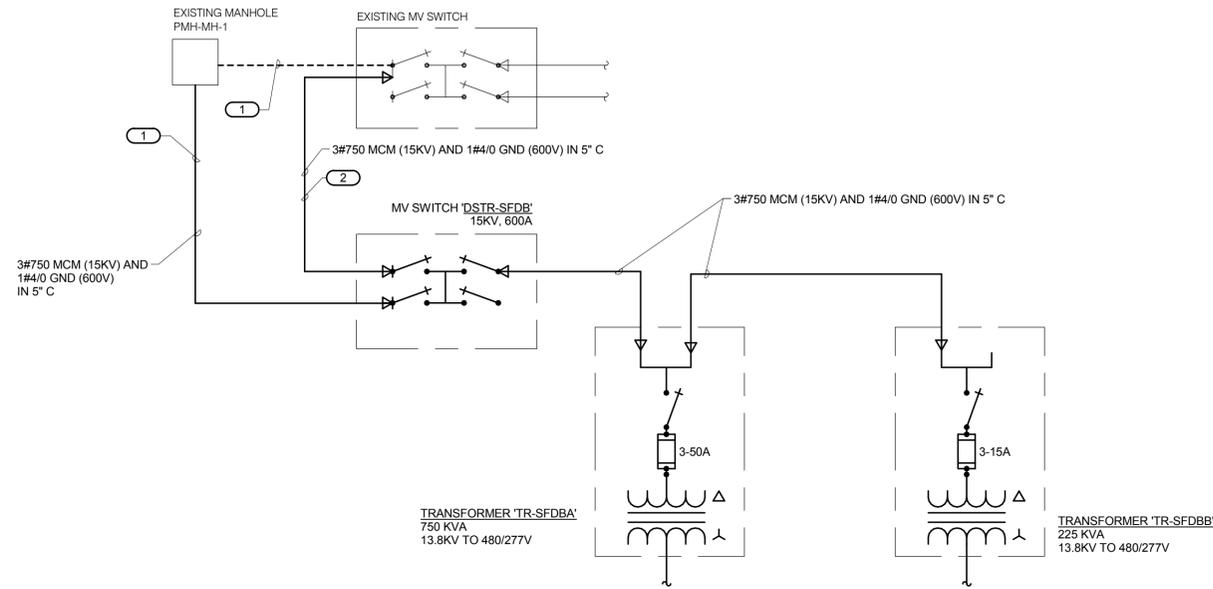
02 MAR. 2015

GENERAL SHEET NOTES

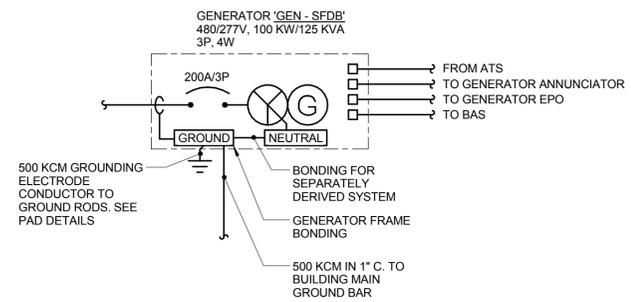
- REFER TO SHEET E-1 FOR ELECTRICAL GENERAL NOTES, ONE LINE DIAGRAM NOTES, GENERAL ELECTRICAL EQUIPMENT SCHEDULE AND TRANSFORMER SCHEDULE.

KEYNOTES (#)

- PULL BACK EXISTING MV FEEDER AND TERMINATE IN NEW MV SWITCH.
- PROVIDE NEW FEEDER BETWEEN NEW AND EXISTING SWITCH.



1 ONE LINE DIAGRAM - 13.8 KV DISTRIBUTION
NO SCALE



2 ONE LINE DIAGRAM - GENERATOR
NO SCALE

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www.kjww.com
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SBN FDB SITE WORK

ONE LINE DIAGRAM

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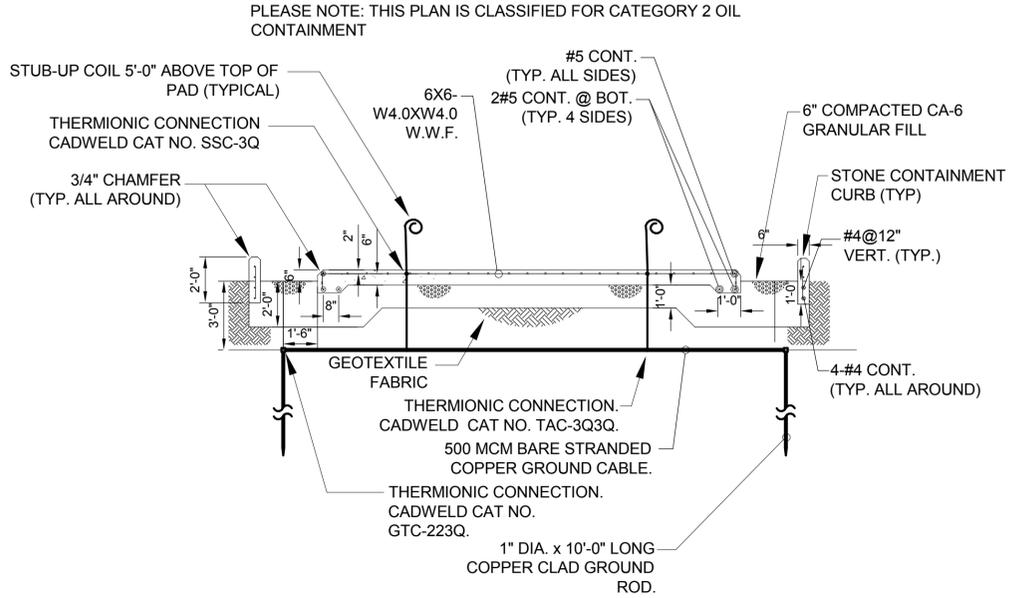
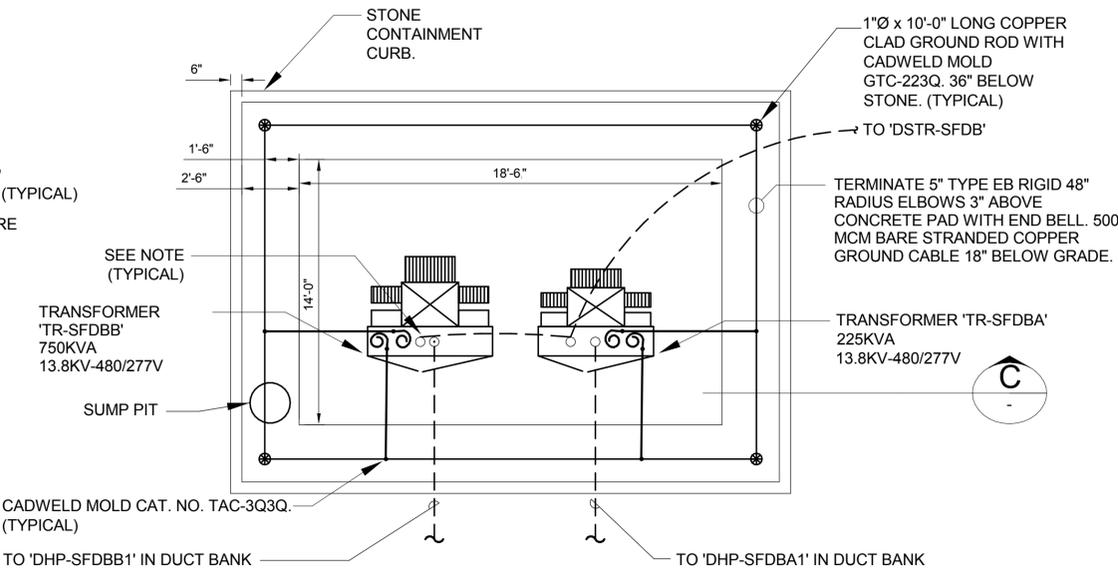
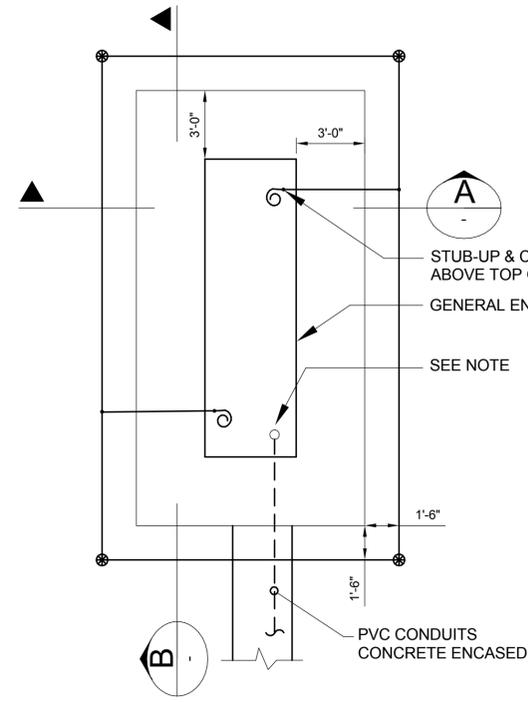
E-3 REV.

02 MAR. 2015

NOTE:
SUB CONTRACTOR SHALL COORDINATE
AND VERIFY EXACT LOCATION OF CONDUIT
STUBS WITH GENERATOR MANUFACTURER.

NOTE:
SUB CONTRACTOR SHALL
COORDINATE AND VERIFY
EXACT LOCATION OF
CONDUIT STUBS WITH
TRANSFORMER MANUFACTURER

INSTALLATION NOTE: ALL 5" CONDUITS
FOR 13.8KV FEEDERS TO TERMINATE
WITH 5", 90°, 48" RADIUS ELBOWS 3"
OVER TOP OF CONCRETE PAD.



GENERATOR PAD PLAN & DETAIL

NO SCALE

1
E-4

**TRANSFORMERS CONCRETE PAD,
OIL CONTAINMENT & GROUNDING TYPICAL DETAIL**

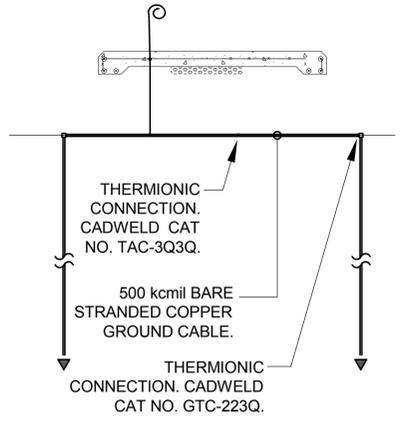
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2
E-4

SECTION

NO SCALE

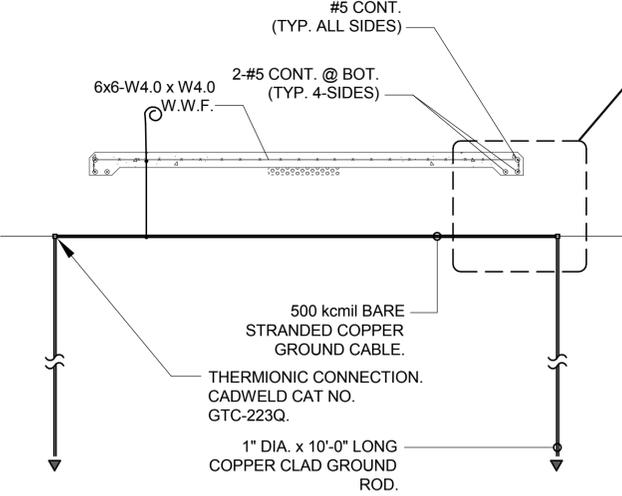
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E-4



SECTION

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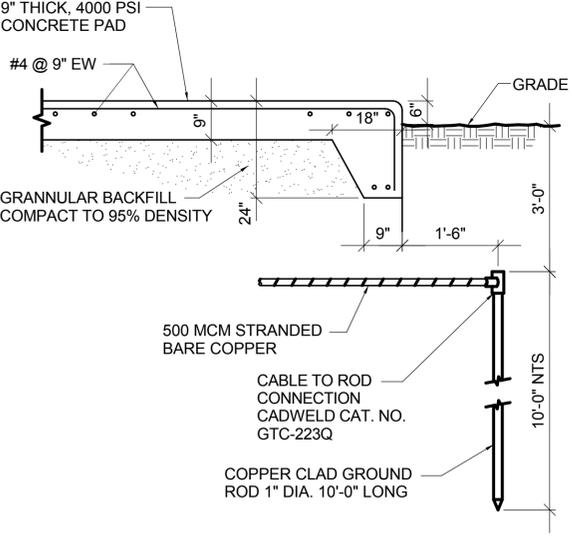
A
-



SECTION

NO SCALE

B
-



SECTION

NO SCALE

3
E-4

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NAPERVILLE, ILLINOIS 60563
630.527.2320 FAX: 630.527.2321
www.kjww.com

FERMI LAB DATE: 3/2/2015

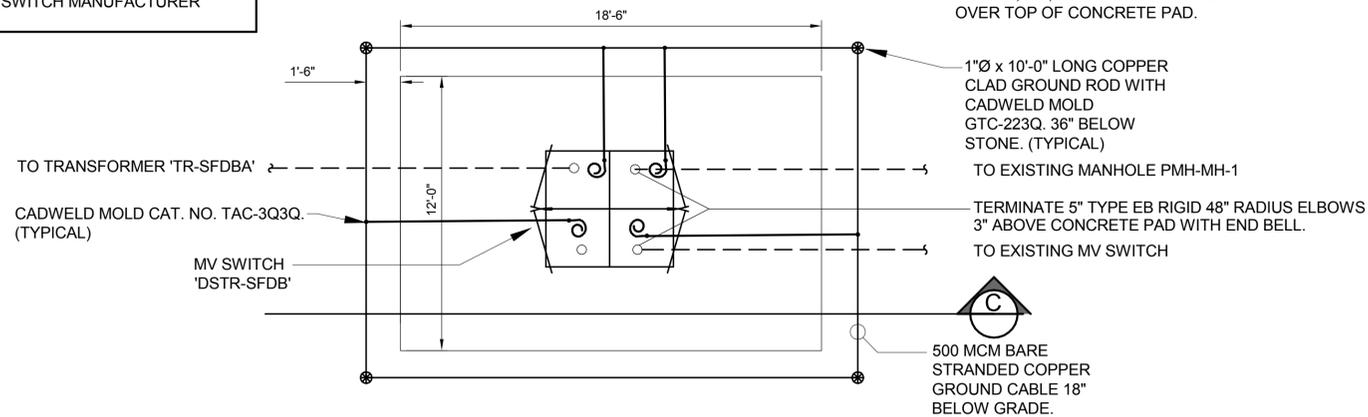
DESIGNED: **T. BALA**
DRAWN: **M. WELLS**
CHECKED:
APPROVED:
SUBMITTED:

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UNITED STATES DEPARTMENT OF ENERGY
SBN FDB SITE WORK
ELECTRICAL DETAILS
DRAWING NO. **6-7-94B** **E-4** REV.

02 MAR. 2015

NOTE:
SUB CONTRACTOR SHALL
COORDINATE AND VERIFY
EXACT LOCATION OF
CONDUIT STUBS WITH
SWITCH MANUFACTURER



**MV SWITCH CONCRETE PAD,
& GROUNDING TYPICAL DETAIL**

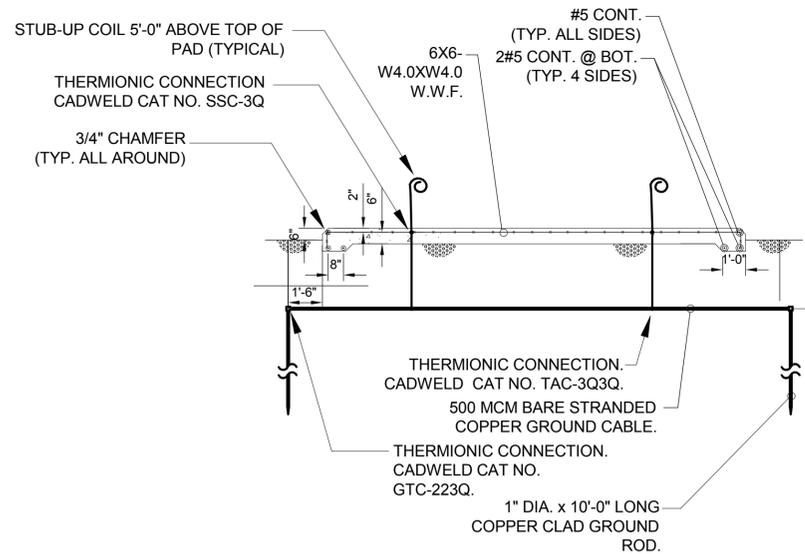
NO SCALE

1
E-5



500 MCM BARE
STRANDED COPPER
GROUND CABLE 18"
BELOW GRADE.

1"Ø x 10'-0" LONG COPPER
CLAD GROUND ROD WITH
CADWELD MOLD
GTC-223Q. 36" BELOW
STONE. (TYPICAL)
TO EXISTING MANHOLE PMH-MH-1
TERMINATE 5" TYPE EB RIGID 48" RADIUS ELBOWS
3" ABOVE CONCRETE PAD WITH END BELL.
TO EXISTING MV SWITCH



SECTION

C
--

1" DIA. x 10'-0" LONG
COPPER CLAD GROUND
ROD.

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1100 WARRENVILLE ROAD, SUITE 400W
NAPERVILLE, ILLINOIS 60563
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DRAWN	M. WELLS	3/2/2015
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SBN FDB SITE WORK
ELECTRICAL DETAILS

DRAWING NO. **6-7-94B**

E-5

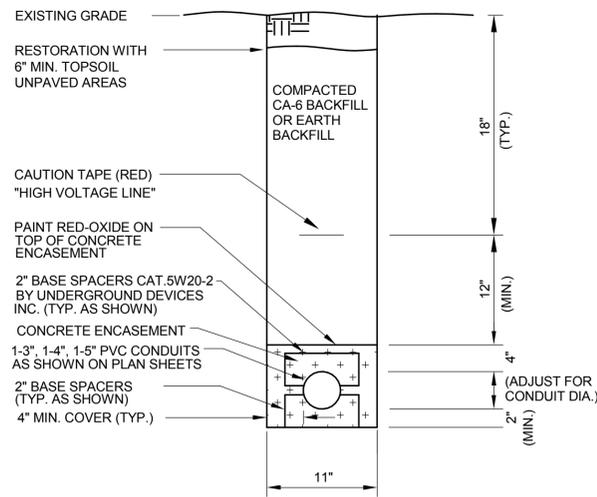
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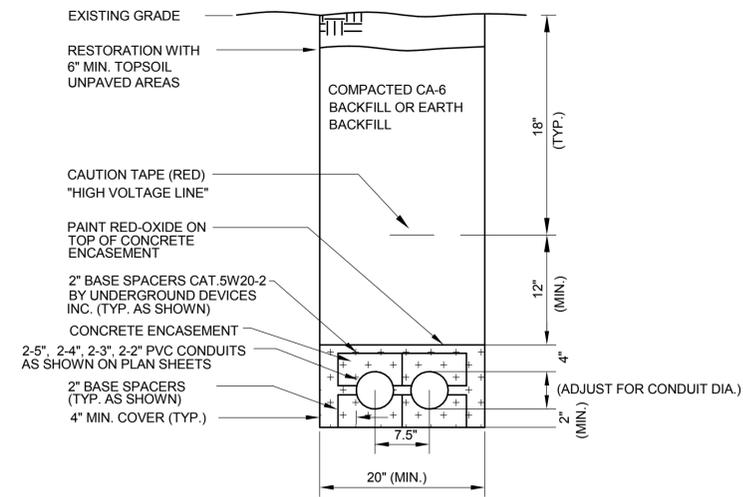
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TYPICAL PVC DUCT BANK SECTION

NO SCALE

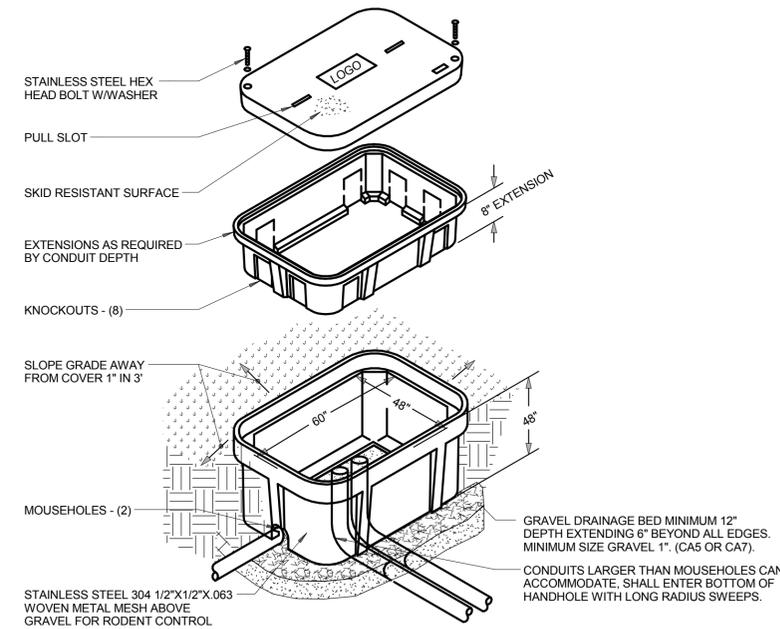
3
E-5



TYPICAL PVC DUCT BANK SECTION

NO SCALE

5
E-5



EXTERIOR HANDHOLE DETAIL

NO SCALE

6
E-5

NOTES:

1. ALL DIMENSIONS ARE NOMINAL INSIDE CLEARANCES.
2. ANY SPLICES OR DEVICES IN HANDHOLE SHALL BE SUBMERSIBLE.
3. SEAL ALL CONDUIT ENDS WITH DUCTSEAL.