

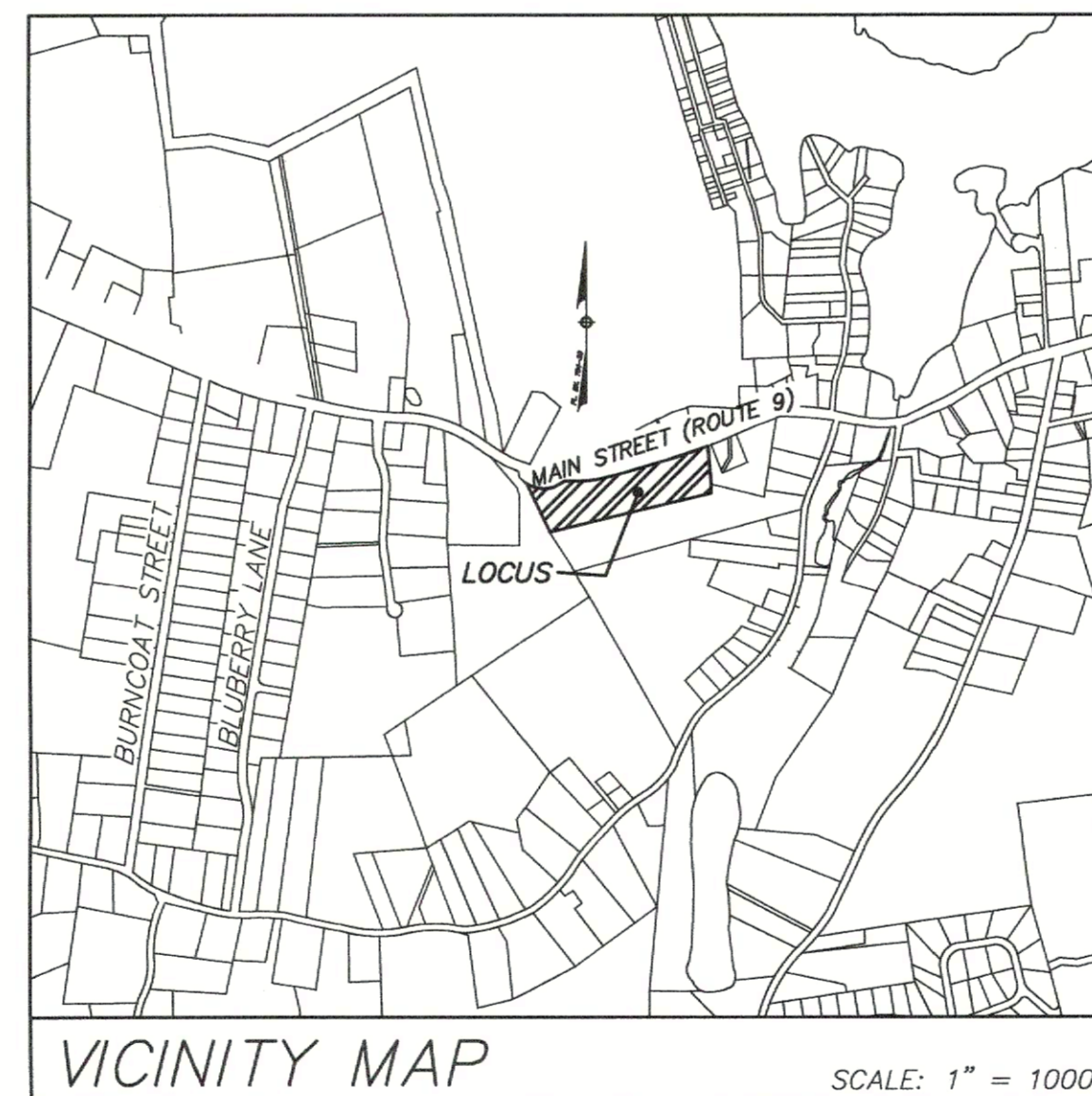
DEFINITIVE SUBDIVISION PLAN

"ROBERT'S WAY" 1355 MAIN STREET

IN LEICESTER, MASSACHUSETTS

NOVEMBER 30, 2022

REVISIONS THROUGH JANUARY 23, 2023



APPLICANT:

ZP BATTERY DEVCO, LLC
BRENDON GOVE
10 E. WORCESTER STREET, SUITE 3A
WORCESTER, MASSACHUSETTS 01604

OWNER:

WR ENTERPRISES, LLC
1323 MAIN STREET
LEICESTER, MASSACHUSETTS 01420

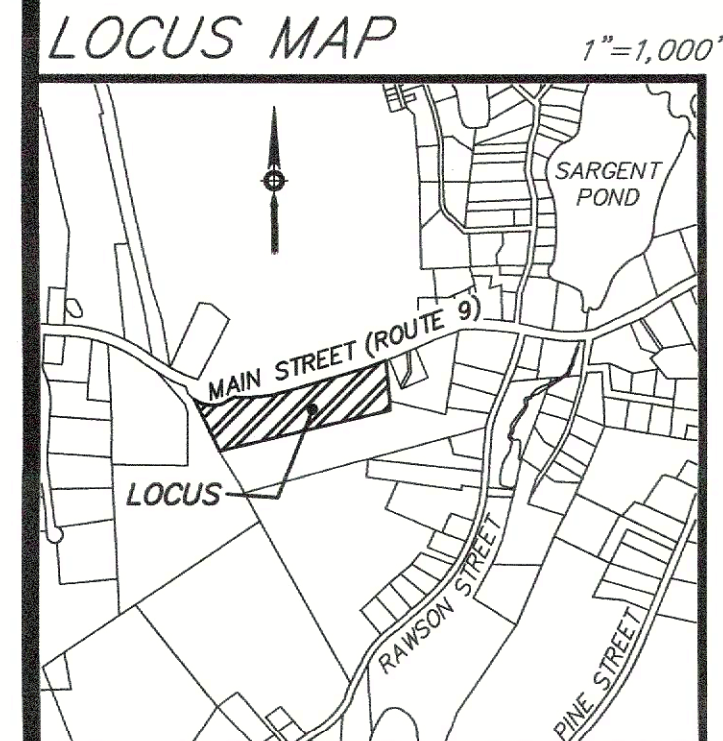
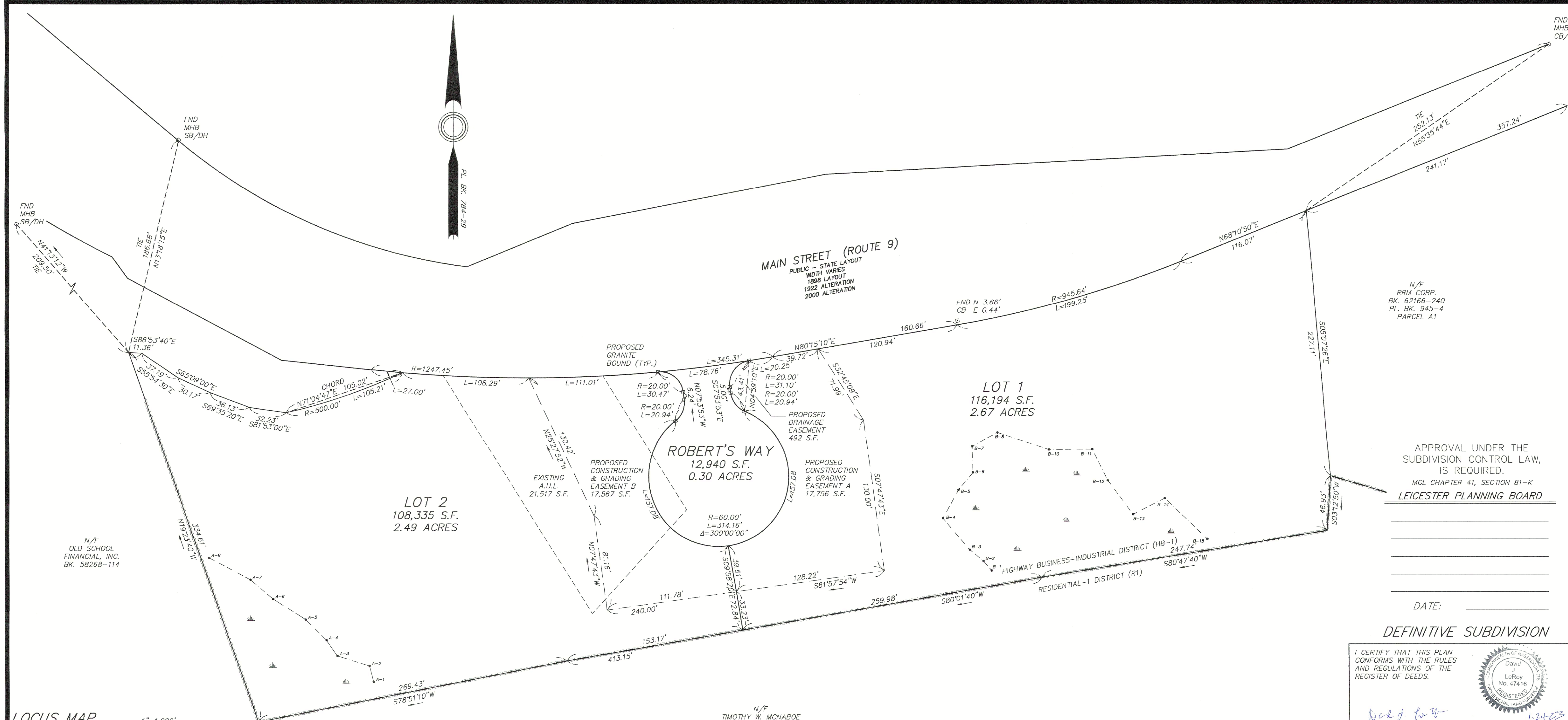
CIVIL ENGINEER & LAND SURVEYOR:

HANNIGAN ENGINEERING, INC.
8 MONUMENT SQUARE
LEOMINSTER, MASSACHUSETTS 01453
TEL: (978) 534-1234

PLAN INDEX

SHEET 1	PLAN OF LAND
SHEET 2	EXISTING CONDITION PLAN
SHEET 3	DEFINITIVE SUBDIVISION PLAN
SHEET 4	ROADWAY PROFILE PLAN
SHEETS 5-6	CONSTRUCTION DETAILS

PERMITTING SET - NOT FOR CONSTRUCTION



I, _____ CLERK OF THE TOWN OF LEICESTER RECEIVED AND RECORDED APPROVAL FROM THE PLANNING BOARD OF THIS PLAN ON _____ AND NO APPEAL WAS TAKEN FOR TWENTY (20) DAYS THEREAFTER.

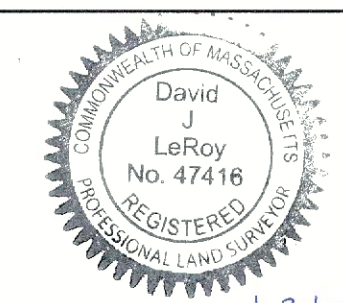
THE WETLANDS SHOWN HEREON WERE DELINEATED BY CARON ENVIRONMENTAL CONSULTING ON MARCH 26, 2021.

APPROVAL UNDER THE SUBDIVISION CONTROL LAW, IS REQUIRED.
MGL CHAPTER 41, SECTION 81-K
LEICESTER PLANNING BOARD

DATE: _____

DEFINITIVE SUBDIVISION

I CERTIFY THAT THIS PLAN CONFORMS WITH THE RULES AND REGULATIONS OF THE REGISTER OF DEEDS.



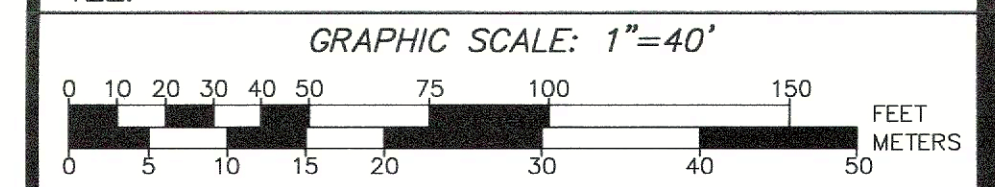
David J. LeRoy
DAVID J. LEROY, PLS #47416
DATE: 1-24-23

HANNIGAN ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS

8 MONUMENT SQUARE (978) 534-1234 (T)
LEOMINSTER, MASSACHUSETTS 01453 (978) 534-6060 (F)
WWW.HANNIGANENGINEERING.COM

PLAN OF LAND IN LEICESTER, MASSACHUSETTS

PREPARED FOR:
ZP BATTERY DEVCO, LLC
BRENDAN GOVE
10 E WORCESTER STREET SUITE 3A
WORCESTER, MASSACHUSETTS 01604
TEL: _____



CALC: DJL	DRWN: DJL	SCALE: 1"=40'
CHKD: CMA	APPD: DJL	DATE: JAN 24, 2023
SRV: JEF	FB: 71-22	JOB NO: 3010
TAB: DEFINITIVE	SHEET 1 OF 6	PLAN NO: C-17-38

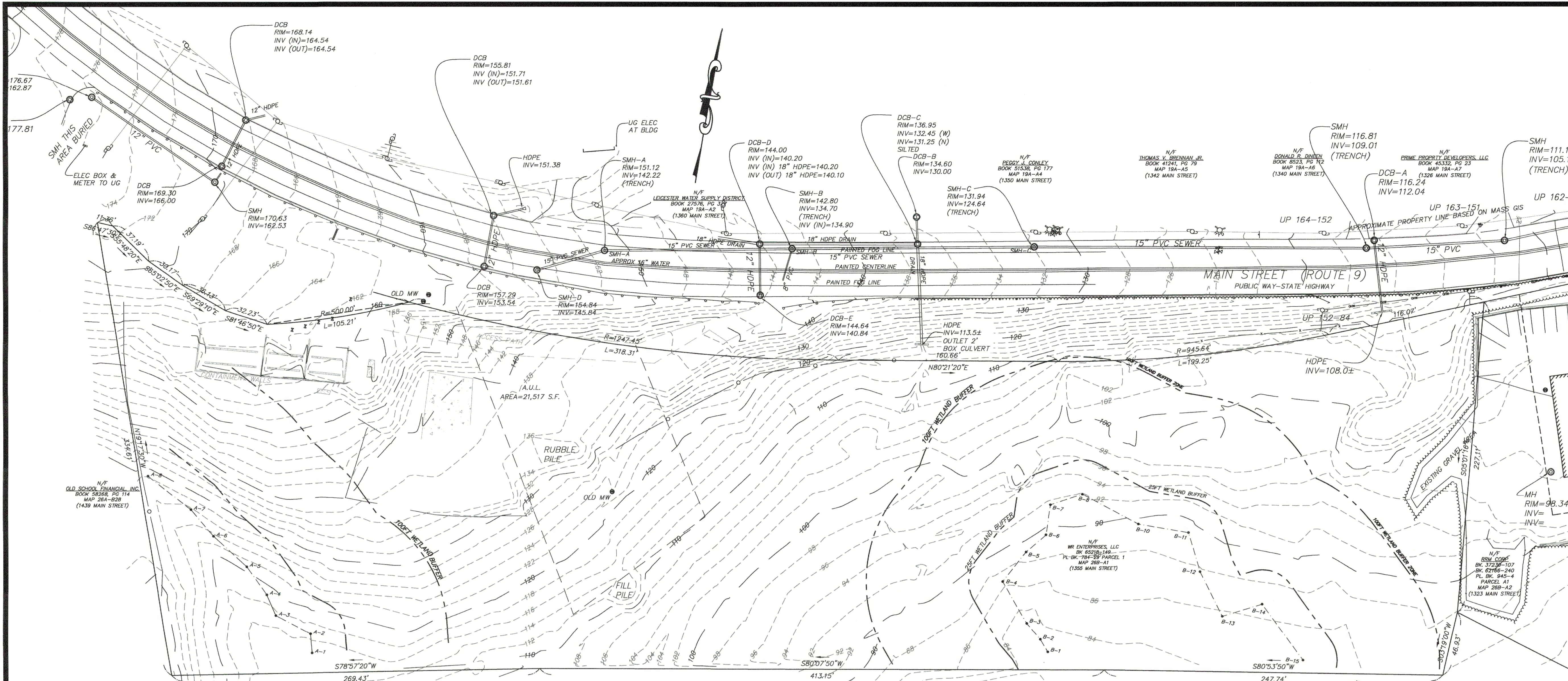
ZONING INFORMATION

ZONING DISTRICT: HIGHWAY BUSINESS-INDUSTRIAL 1 (HB-1)
DIMENSIONAL REQUIREMENTS:

MINIMUM AREA:	60,000 S.F.
MINIMUM FRONTAGE:	200'
MAXIMUM HEIGHT:	55'
MINIMUM SETBACKS:	
FRONT YARD:	50'
SIDE YARD:	50'
REAR YARD:	50'

RECORD OWNER

WR ENTERPRISES, LLC
BK. 65218-149
PL. BK. 784-29
ASSESSOR'S MAP 26B PARCEL A-1
1323 MAIN STREET
LEICESTER, MA 01524



PROJECT INFORMATION

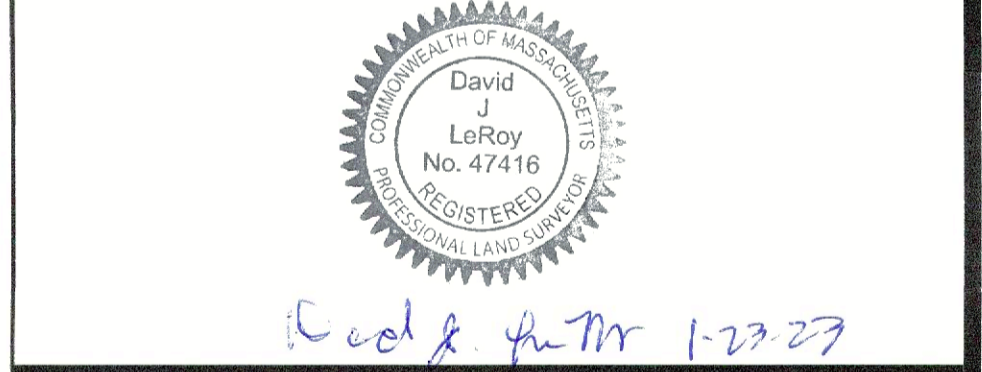
LAND INFORMATION
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 - LOCATION OF ALL UTILITIES ARE APPROXIMATE AS SHOWN AND BASED UPON VISIBLE STRUCTURES AT THE TIME OF THE FIELD SURVEY. LOCATION OF EXISTING UTILITIES AND SUBSURFACE STRUCTURES, WHETHER OR NOT SHOWN ON THESE PLANS, SHALL BE DETERMINED BY THE CONTRACTOR, MARKED IN THE FIELD, AND REVIEWED BY THE ENGINEER PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL BE AWARE OF THE OBLIGATION TO ALL UTILITY COMPANIES AND AGENCY AS WELL AS DIG-SAFE PRIOR TO EXCAVATION. (SEE NOTE)
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 - UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND WORKMANSHIP SHALL CONFORM WITH THE REQUIREMENTS OF THE TOWN OF LEICESTER AND THE MASS DOT SPECIFICATIONS OF HIGHWAYS AND BRIDGES.
 - ALL SLOPES UNLESS OTHERWISE SPECIFIED, SHALL BE LOAMED AND SEEDED FOR STABILIZATION.
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 - THE AREA PROPOSED FOR DEVELOPMENT IS NOT WITHIN A 100 YEAR FLOOD PLAIN PER F.E.M.A. FIRM PANEL #250313 0781 E, DATED: JULY 4, 2011. COMPLIANCE WITH APPLICABLE REGULATIONS IS REQUIRED.
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DEFINITIVE PLAN

NO.	DATE	REVISIONS	BY
1	1/23/23	PEER REVIEW COMMENT	CMA



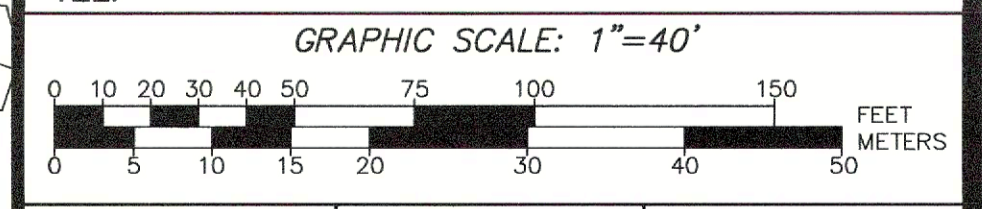
Cool & LeRoy 1-23-23

HANNIGAN ENGINEERING, INC.
 CIVIL ENGINEERS & LAND SURVEYORS

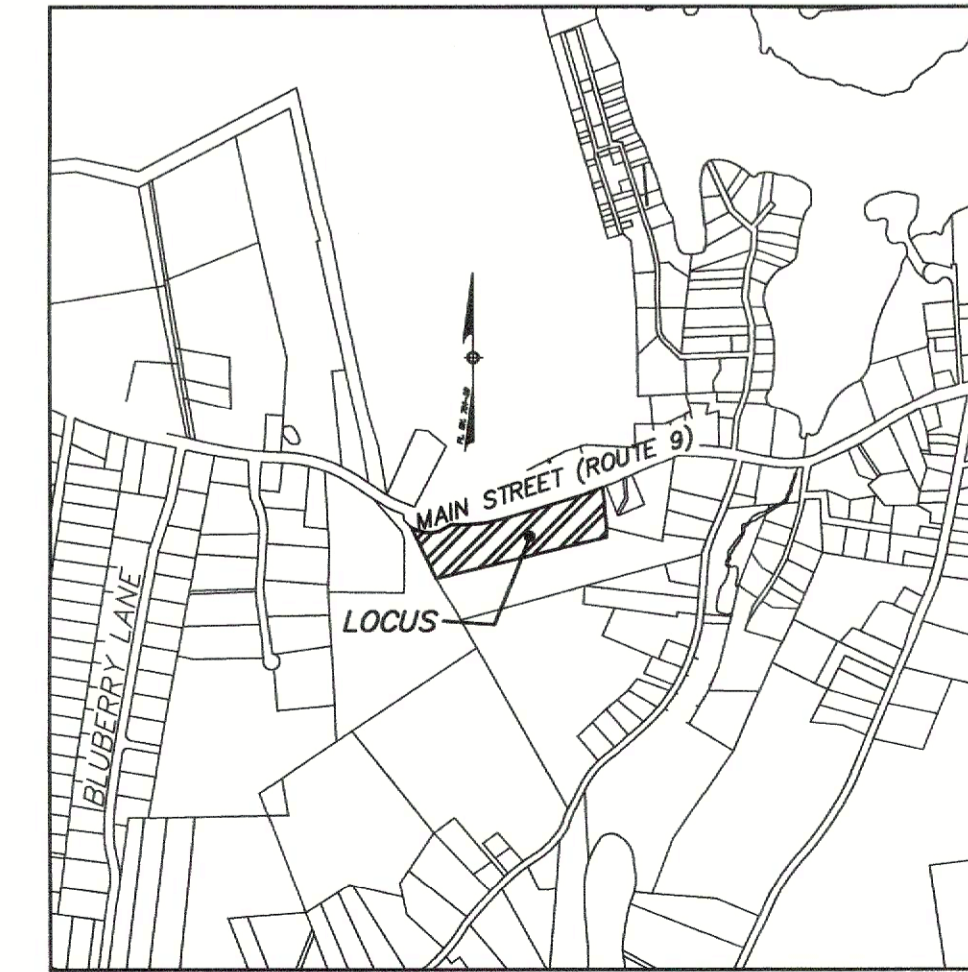
8 MONUMENT SQUARE (978) 534-1234 (T)
 LEICESTER, MASSACHUSETTS 01453 (978) 534-6060 (F)
 WWW.HANNIGANENGINEERING.COM

EXISTING CONDITIONS PLAN IN LEICESTER, MASSACHUSETTS

PREPARED FOR:
 ZP BATTERY DEVCO, LLC
 BRENDAN GOVE
 10 E WORCESTER STREET SUITE 3A
 WORCESTER, MASSACHUSETTS 01604
 TEL:



CALC: CMA	DRWN: CMA	SCALE: 1"=40'
CHKD: WDH	APPD: WDH	DATE: NOV 30, 2022
SRV: JEF	FB: 71-22	JOB NO: 3010
TAB: (2) EXCON	SHEET 2 OF 6	PLAN NO: C-17-38

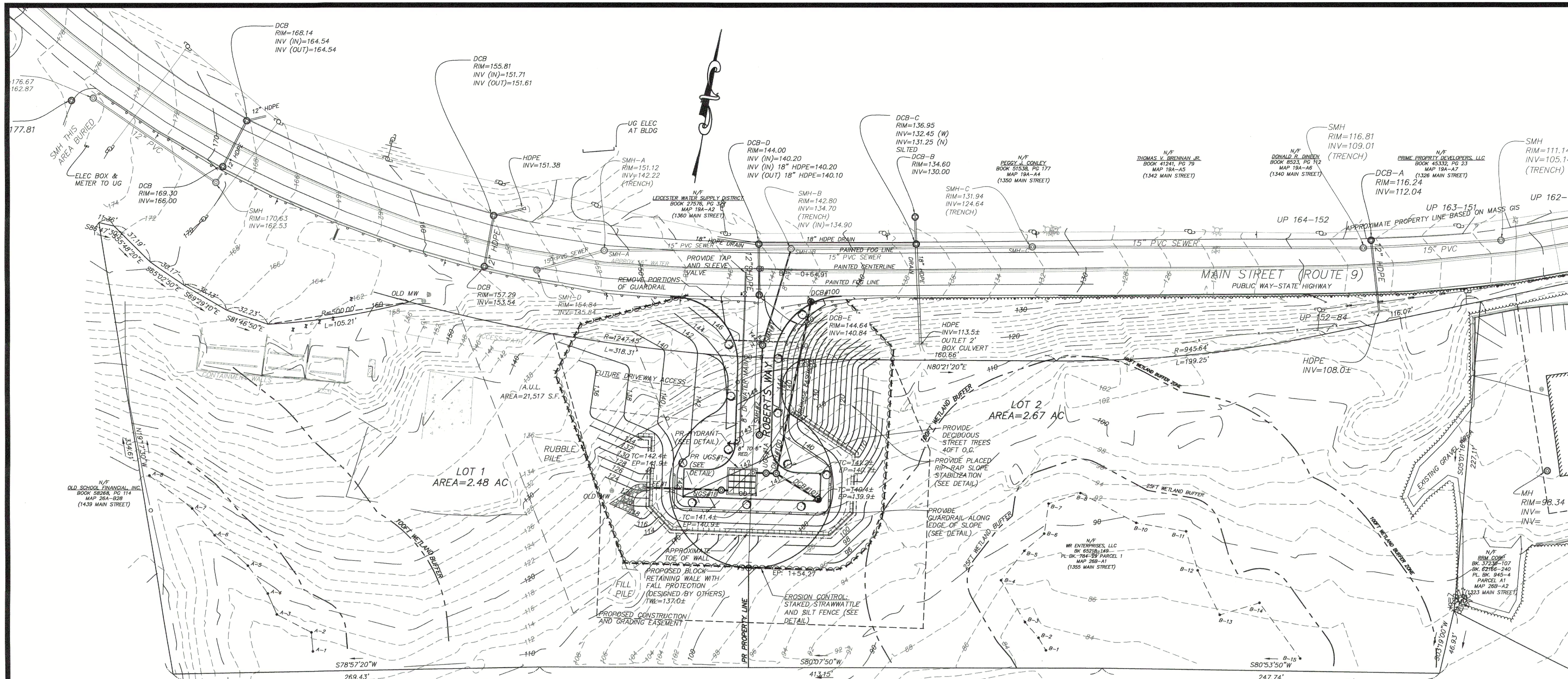


APPLICANT:
 ZP BATTERY DEVCO, LLC
 BRENDAN GOVE
 10 E WORCESTER STREET, SUIT 3A
 WORCESTER, MASSACHUSETTS 01604

OWNER:
 WR ENTERPRISES, LLC
 1323 MAIN STREET
 LEICESTER, MASSACHUSETTS 01524

LEICESTER PLANNING BOARD

DATE: _____



PROJECT INFORMATION

LAND INFORMATION
 MAP/PARCEL: 268/A1
 DEED BOOK-PAGE: 65218/149
 EXISTING FRONTAGE: 794.29'
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 - RELOCATION OF AND/OR CONNECTION TO EXISTING UTILITIES SHALL BE PERFORMED IN ACCORDANCE WITH PROVISIONS OF THE APPROPRIATE UTILITY COMPANY AND/OR REGULATORY AGENCY. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.
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DEFINITIVE PLAN

NO.	DATE	REVISIONS	BY
1	1/23/23	PEER REVIEW COMMENT	CMA

HANNIGAN ENGINEERING, INC.
 CIVIL ENGINEERS & LAND SURVEYORS

8 MONUMENT SQUARE
 LEOMINSTER, MASSACHUSETTS 01453
 (978) 534-1234 (T)
 (978) 534-6060 (F)
 WWW.HANNIGANENGINEERING.COM

CHRISTOPHER M. ANDRISON
 1-23-23

DEFINITIVE SUBDIVISION PLAN

IN
LEICESTER, MASSACHUSETTS

PREPARED FOR:
 ZP BATTERY DEVCO, LLC
 BRENDAN GOVE
 10 E. WORCESTER STREET SUITE 3A
 WORCESTER, MASSACHUSETTS 01604
 TEL:

GRAPHIC SCALE: 1"=40'

CALC: CMA	DRWN: CMA	SCALE: 1"=40'
CHKD: WDH	APPD: WDH	DATE: NOV 30, 2022
SRV: JEF	FB: 71-22	JOB NO: 3010
TAB: (3) SDP	SHEET 3 OF 6	PLAN NO: C-17-38

SCHEDULE OF DRAINAGE STRUCTURES & ELEVATIONS

FROM	PIPE	TO
DCB#100 RIM=142.0± INV=138.5± SUMP=134.5±	12" HDPE L=128 FT S=0.020 F/F	DMH#100 WOU RIM=141.4± INV=136.0±(DCB#100) INV=136.0±(DMH#101) INV=135.75±(OUT) HYDROWORKS HG4
DCB#101 RIM=139.9± INV=136.4± SUMP=132.4±	12" HDPE L=36 FT S=0.011 F/F	DMH#100 WOU RIM=141.4± INV=136.0±(DCB#100) INV=136.0±(DMH#101) INV=135.75±(OUT) HYDROWORKS HG4
DMH#100 WOU RIM=141.4± INV=136.0±(DCB#100) INV=136.0±(DMH#101) INV=135.75±(OUT) HYDROWORKS HG4	12" HDPE L=8 FT S=0.033 F/F	UGS#1A RIM=141.6± INV=135.5±(DMH#100) INV=135.4±(MANIFOLD) SUMP=131.4±
UGS#1B RIM=141.3± INV=135.0±(6" ORIFICE) INV=131.5±(SUBDRAIN) INV=130.4±(OUT)	12" HDPE L=54 FT S=0.100 F/F	FE#1 INV=125.0±

SCHEDULE OF SEWER STRUCTURES & ELEVATIONS

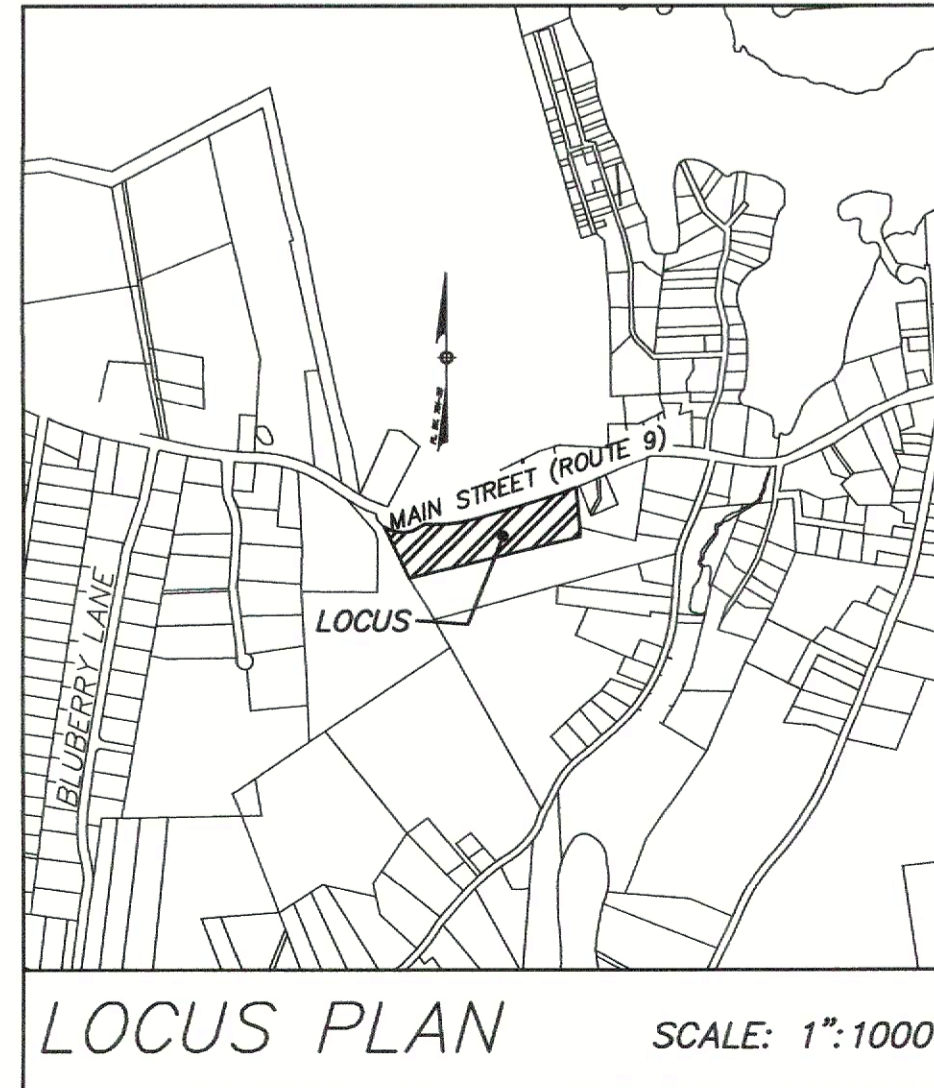
FROM	PIPE	TO
SMH#1 RIM=144.6± INV=136.4±(SMH#2) INV=136.3±	8" SDR35 PVC L=111 FT S=0.020 F/F	SMH-B RIM=142.80 INV=134.70 (TRENCH) INV (N)=134.90
SMH#2 RIM=142.8± INV=137.7±	8" SDR35 PVC L=66 FT S=0.020 F/F	SMH#1 RIM=144.1± INV=137.1±

NOTE: CONTRACTOR SHALL DETERMINE FIELD LOCATION AND ELEVATION OF EXISTING 8" SEWER STUB PRIOR TO CONSTRUCTION.

LEICESTER PLANNING BOARD

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LOCUS PLAN SCALE: 1"=1000'

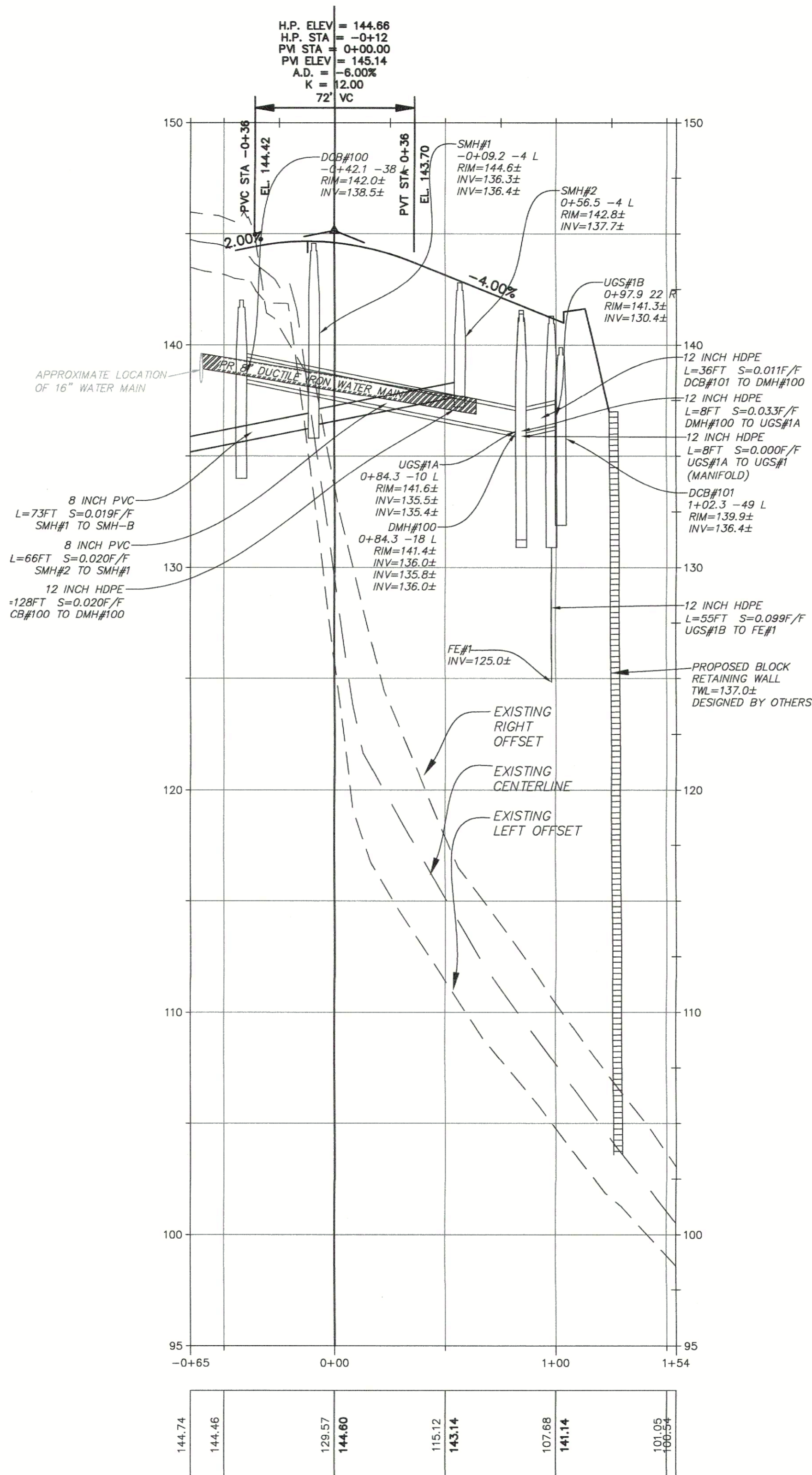
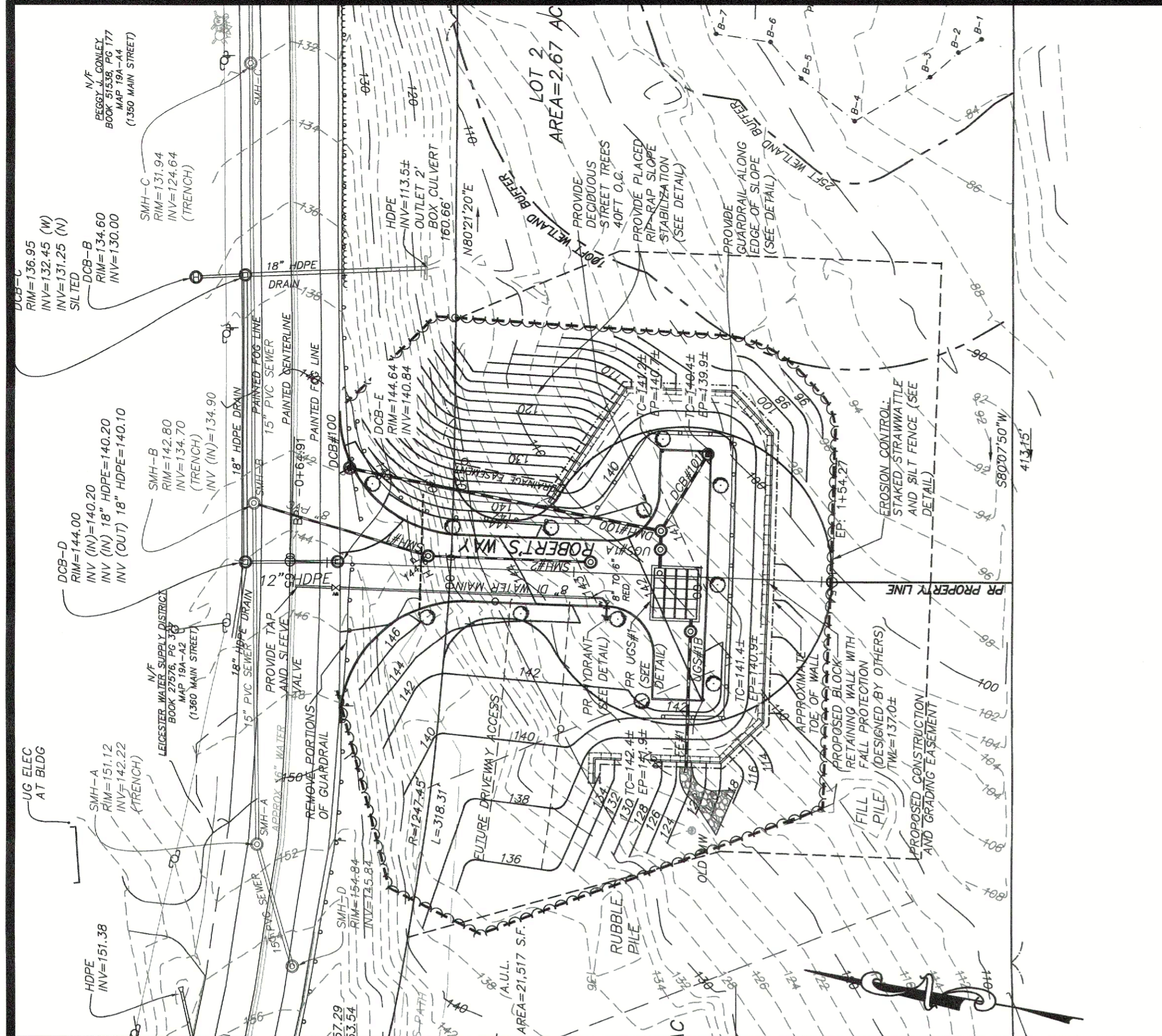
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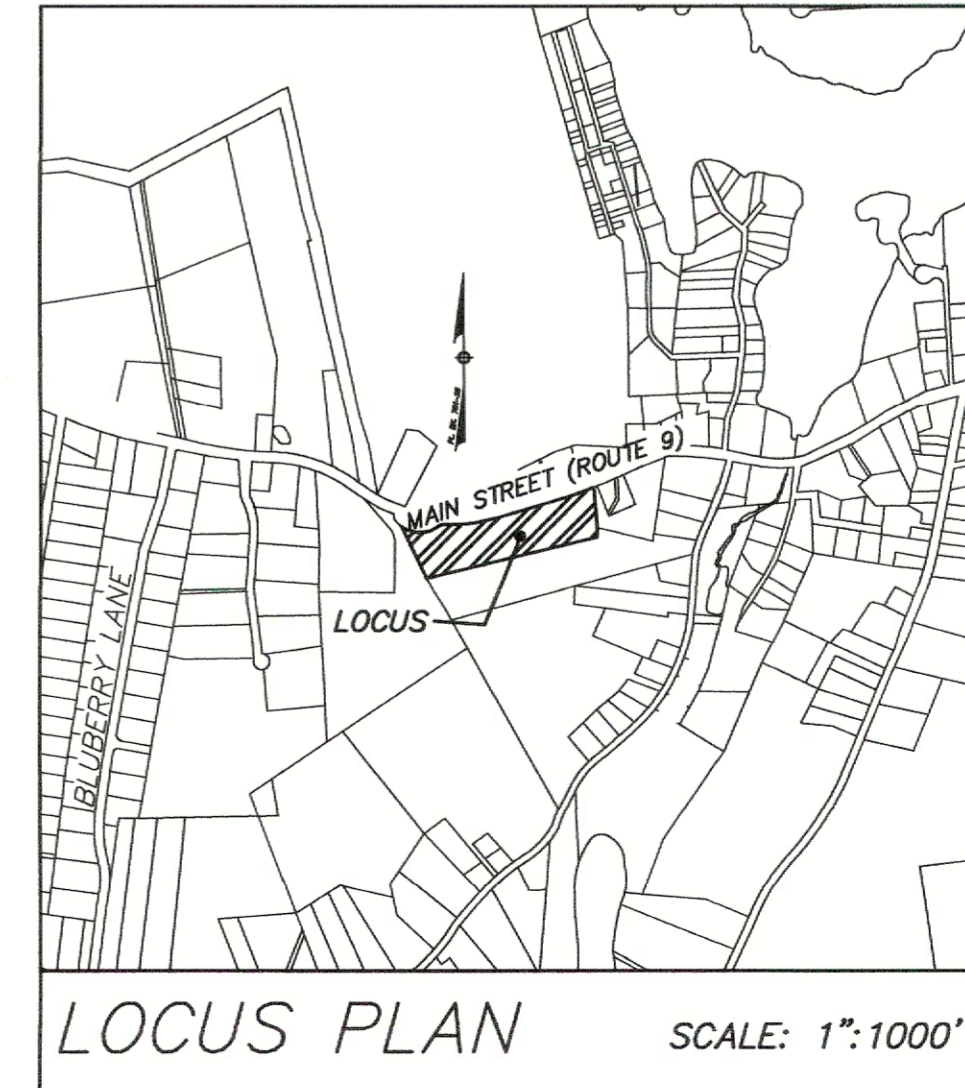
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ROADWAY PROFILE - ROBERT'S WAY
HORIZONTAL SCALE: 1" = 40'
VERTICAL SCALE: 1" = 4'



LOCUS PLAN SCALE: 1" = 1000'

DEFINITIVE PLAN

NO.	DATE	REVISIONS	BY
1	1/23/23	PEER REVIEW COMMENT	CMA

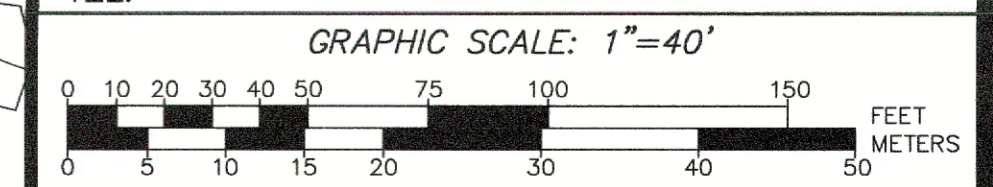


HANNIGAN ENGINEERING, INC.
CIVIL ENGINEERS & LAND SURVEYORS

8 MONUMENT SQUARE (978) 534-1234 (T)
LEOMINSTER, MASSACHUSETTS 01453 (978) 534-6060 (F)
WWW.HANNIGANENGINEERING.COM

ROADWAY PROFILE IN LEICESTER, MASSACHUSETTS

PREPARED FOR:
ZP BATTERY DEVCO, LLC
BRENDAN GOVE
10 E. WORCESTER STREET SUITE 3A
WORCESTER, MASSACHUSETTS 01604
TEL:



CALC: CMA	DRWN: CMA	SCALE: 1" = 40'
CHKD: WDH	APPD: WDH	DATE: NOV 30, 2022
SRV: JEF	FB: 71-22	JOB NO: 3010
TAB: (4) PROF	SHEET 4 OF 6	PLAN NO: C-17-38

LEICESTER PLANNING BOARD	
DATE:	

APPLICANT:
ZP BATTERY DEVCO, LLC
BRENDAN GOVE
10 E. WORCESTER STREET, SUIT 3A
WORCESTER, MASSACHUSETTS 01604
OWNER:
WR ENTERPRISES, LLC
1323 MAIN STREET
LEICESTER, MASSACHUSETTS 01524

EROSION & SEDIMENTATION CONTROL PLAN

GENERAL:
 1. THE PURPOSE OF THIS PLAN IS TO PRESENT A PREVENTIVE METHOD OF CONSTRUCTION TO MINIMIZE THE IMPACT OF THE CONSTRUCTION ACTIVITIES UPON WETLAND AND OTHER SENSITIVE AREAS. THE DATA CONTAINED ON THIS PLAN IS INTENDED TO SUPPLEMENT THE DEVELOPER OR CONTRACTOR'S EXPERIENCE AND IS NOT MEANT TO PRESENT LOGICAL DECISIONS REQUIRED BY A VARIETY OF FIELD CONDITIONS INCLUDING WEATHER AND THE TYPE OF EQUIPMENT AVAILABLE TO THE CONTRACTOR.

2. THE CONTRACTOR SHALL BE AWARE OF THE REQUIREMENTS AND OBLIGATIONS TO COMPLY WITH CHAPTER 13B, SECTION 40 OF THE MASSACHUSETTS GENERAL LAWS, OTHERWISE KNOWN AS THE WETLANDS PROTECTION ACT, AND ITS ASSOCIATED REGULATIONS (310 CMR 10.00). CERTAIN PERMITS IN THE FORM OF AN ORDER OF CONDITIONS, OR OTHER FORMAT, MAY BE REQUIRED FOR THE CONSTRUCTION AS DEPICTED ON THIS PLAN. THESE PERMITS SHALL BE REVIEWED AND ADHERED TO BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PROCESS. THE CONTRACTOR SHALL ALSO MAINTAIN COPIES OF ALL PERMITS ON SITE AT ALL TIMES.

3. IF CHANGES IN THE PROJECT ARE REQUIRED DUE TO FIELD CONDITIONS THE DEVELOPER/CONTRACTOR SHALL PROMPTLY NOTIFY THE ENGINEER FOR REVIEW OF THESE CONDITIONS. UPON REVIEW, AND PRIOR TO THE IMPLEMENTATION OF ANY CHANGE, THE CONTRACTOR AND THE ENGINEER SHALL MEET WITH THE APPROPRIATE LOCAL AND/OR STATE OFFICIAL, OR ITS AGENT, TO DETERMINE IF THE CHANGE REQUIRES MODIFICATION TO EXISTING APPROVED PERMITS.

4. ALTERATION AND/OR DESTRUCTION OF WETLAND AREAS WITHOUT PRIOR CONSENT OF THE CONSERVATION COMMISSION IS PROHIBITED. SILTATION PLUMES, ILLICIT DISCHARGES, OR INADVERTENT ALTERATION SHALL BE CONSIDERED AS ACTIVITIES NOT PERMITTED BY THE ORDER AND SHALL BE REPORTED TO THE CONSERVATION COMMISSION ALONG WITH THE PROPOSED MITIGATIVE MEASURES.

5. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, THE EROSION AND SEDIMENT CONTROL BARRIER SHALL BE INSTALLED AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL MAINTAIN THE EROSION CONTROL BARRIER UNTIL ALL WORK IS COMPLETE, AND ALL AREAS HAVE BEEN STABILIZED. THE REMOVAL OF SEDIMENT CONTROL DEVICES SHALL BE ONLY UPON THE APPROVAL OF THE CONSERVATION COMMISSION.

6. EROSION AND SEDIMENTATION CONTROL DEVICES, SUCH AS CHECK DAMS, SEDIMENT BASINS, ETC. ARE TO BE INSTALLED AS SHOWN ON THE SITE DEVELOPMENT PLANS WITH ASSOCIATED DETAILS, AS APPROPRIATE.

7. CONSTRUCTION OPERATIONS SHALL NOT CAUSE NOTICEABLE SEDIMENTATION PLUMES TO OCCUR ON OR SURROUNDING THE PROJECT. SHOULD SEDIMENT EXTEND BEYOND THE EROSION CONTROL BARRIERS, THE CONTRACTOR SHALL STOP WORK AND INSTALL ADDITIONAL MITIGATION MEASURES TO PREVENT FURTHER SEDIMENTATION.

8. NO MATERIAL SUBJECT TO EROSION SHALL BE STOCKPILED OVERNIGHT WITHIN 100 FEET OF ANY WETLAND AREAS WITHOUT PROPER EROSION AND SEDIMENTATION DEVICES IN PLACE.

9. EQUIPMENT SHALL NOT BE PARKED WITHIN WETLAND OR BUFFER AREAS EXCEPT DURING ACTUAL OPERATIONS REQUIRING SAID EQUIPMENT.

10. ACCUMULATED SEDIMENT ALONG EROSION CONTROL BARRIERS SHALL BE PERIODICALLY REMOVED AND DISPOSED OF BY THE CONTRACTOR AS REQUIRED BY THE CONSERVATION COMMISSION OR AS DIRECTED BY THE ENGINEER.

EROSION CONTROL METHODS:
 1. IT IS OF GREAT IMPORTANCE THAT CONCENTRATION OF RUNOFF BE AVOIDED IN ORDER TO PREVENT THE TRANSPORT OF SEDIMENT.
 2. THE PRIMARY EROSION CONTROL METHOD TO BE UTILIZED IS TO LIMIT THE AREA OF DISTURBANCE DURING CONSTRUCTION ACTIVITIES. THIS IS ACCOMPLISHED BY PROMPT STABILIZATION OF DISTURBED AREAS UPON COMPLETION OF SEQUENCES OF CONSTRUCTION.
 3. EROSION AND SEDIMENT CONTROL DEVICES SUCH AS HAY BALES, SILT FENCES, DIVERSION BERMS, ETC. SHALL BE UTILIZED FOR THE PROTECTION OF THE AREAS BEYOND THE LIMIT OF CONSTRUCTION.

DEMARCATION OF SENSITIVE AREAS:
 1. IT IS RECOMMENDED THAT BARRIERS BE PLACED ON THE SITE TO CONTROL THE LIMITS OF THE DISTURBANCE. AS AN EXAMPLE, HAY BALE BARRIERS PROVIDE SUCH DEMARCATION AND OTHER METHODS SUCH AS LOG BARRIERS, ROPE WITH FLAGGING, ETC. MAY BE UTILIZED.
 2. CARE SHOULD BE TAKEN IN THE OPERATION OF EQUIPMENT, SUCH THAT ONLY THE MINIMUM AREA NEEDED TO BE ALTERED IS DISTURBED.
 3. LABORERS VEHICLES SHALL BE PARKED IN A DESIGNATED AREA AS TO MINIMIZE DISTURBED SURFACES AND TO INSURE THAT RUTS ARE NOT CREATED AND WHICH COULD CARRY WATER TO A WETLAND OR OTHER SENSITIVE AREA.
 4. SUITABLE MEASURES SHALL BE TAKEN TO INSURE THAT LARGE DELIVERY TRUCKS SERVING THE SITE DO NOT DAMAGE TO AREAS OF EXISTING VEGETATION OR CAUSE DISTURBANCE TO STABILIZED AREAS.

ORDERLY CONSTRUCTION PROCEDURES:
 1. THE CONTRACTOR SHALL PERFORM SITE CONSTRUCTION IN A MANNER WHICH WILL INSURE THE STABILIZATION OF AREAS IN PROXIMITY OF OR TRIBUTARY TO WETLAND AREAS AS SOON AS POSSIBLE.
 2. EROSION CONTROL DEVICES SUCH AS HAY BALE BARRIERS, SILT FENCES AND MULCH SHALL BE BROUGHT TO THE SITE AND STOCKPILED PRIOR TO INITIATING CONSTRUCTION.
 3. THE CONTRACTOR SHALL PROVIDE AREAS FOR THE TEMPORARY STORAGE OF CONSTRUCTION DEBRIS. CONSTRUCTION DEBRIS SHALL NOT BE ALLOWED TO ACCUMULATE FOR AN EXTENDED PERIOD OF TIME.

CLEARING:
 1. LAND CLEARING SHALL BE PERFORMED IN PHASES CONSISTENT WITH ACTUAL CONSTRUCTION REQUIREMENTS. FINAL LAND CLEARING SHALL BE LIMITED TO RETURN TO GRADE SLOPES.
 2. TREES SHALL BE CUT FOR ENTIRE SITE LEAVING SUMPS IN PLACE TO MAINTAIN SOIL STABILIZATION.
 3. STUMPS SHALL BE PULLED AND STOCKPILED FOR GRINDING.
 4. BRUSH AND BRANCHES SHOULD BE CHIPPED AND UTILIZED FOR WOOD MULCH IF PRACTICAL.
 5. VEHICLES UTILIZED IN THE CLEARING OPERATION SHOULD NOT TRAVERSE WETLANDS OR FLOWING BROOKS OR STREAMS WITHOUT PRIOR APPROVAL FROM THE LOCAL CONSERVATION COMMISSION OR AGENT.

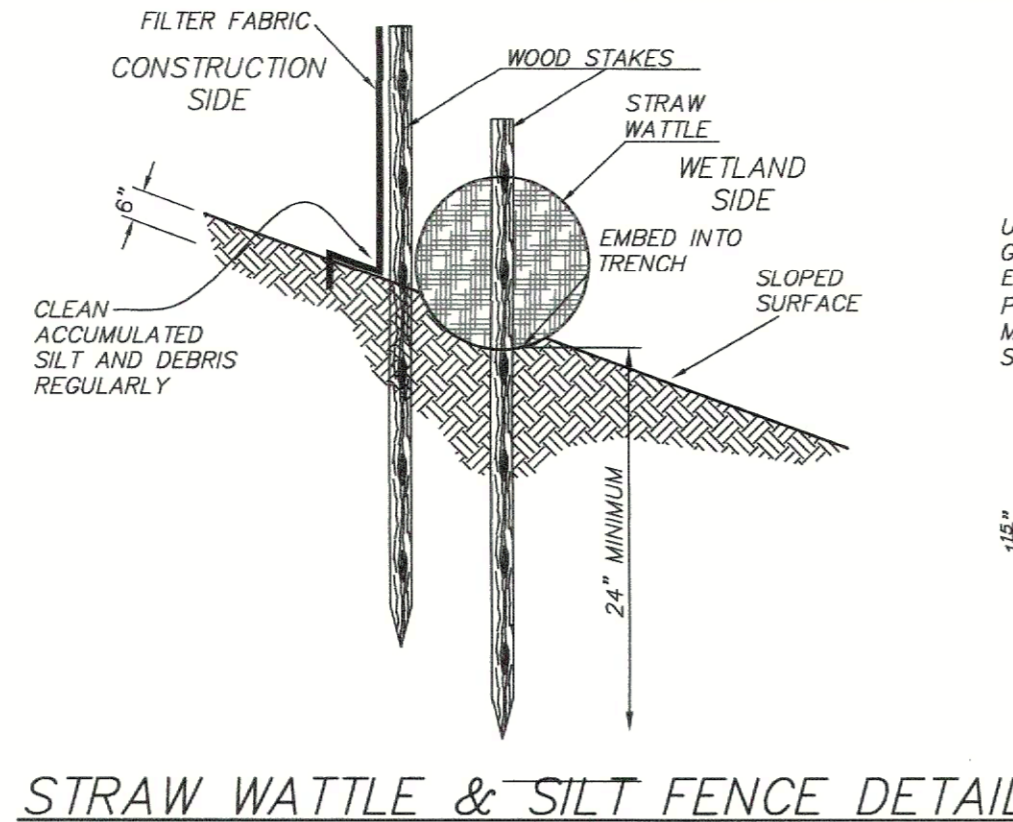
ROUGH GRADING:

1. THE ROUGH GRADING OF THE SITE SHALL FOLLOW THE FILL AND EXCAVATION SEQUENCES AS DESCRIBED ON THE CONSTRUCTION PHASING PLANS. SLOPES SHALL BE MAINTAINED AWAY FROM WETLANDS AND SENSITIVE AREAS AS MUCH AS PRACTICAL.
 2. DURING THIS PROCESS THE EROSION POTENTIAL IS HIGH. SUFFICIENT EROSION CONTROL BARRIERS SHOULD BE KEPT IN PROXIMITY TO THE WORK AREA TO ALLOW QUICK ACTION SHOULD EROSION BECOME AN ISSUE AND TO INSURE THAT NO SEDIMENT REACHES WETLANDS OR OTHER SENSITIVE AREAS.
 3. IN AREAS OF CUT AND/OR FILL WHERE SLOPES COULD DIVERT WATER TOWARD WETLAND AREAS, DIVERSION TRENCHES AND/OR SWALES SHOULD BE CONSIDERED AND IMPLEMENTED TO DIVERT WATER AWAY FROM THESE AREAS.
 4. STEEP SIDE SLOPES IN EXCAVATION OR FILL SHOULD BE AVOIDED.
 5. DISTURBED AREAS SHALL BE STABILIZED BY LOAMING AND SEEDING OR RIPRAPPED IMMEDIATELY AFTER THE FINISH GRADE HAS BEEN MET. IF FINAL GRADING DOES NOT OCCUR DURING THE GROWING SEASON, THESE AREAS SHALL BE MULCHED WITH HAY WITH A TACKIFIER, IF NECESSARY SLOPED AREAS MAY REQUIRE ADDITIONAL CONTROLS SUCH AS EROSION CONTROL SOCKS OR HAYBALES.
 6. A GROUND COVER SUFFICIENT TO RETAIN SOILS IN A STABILIZED CONDITION MUST BE PROVIDED WITHIN 14 WORKING DAYS, SEASON PERMITTING, ON ANY PORTION OF THE TRACT UPON WHICH FURTHER ACTIVE CONSTRUCTION IS NOT BEING UNDERTAKEN.

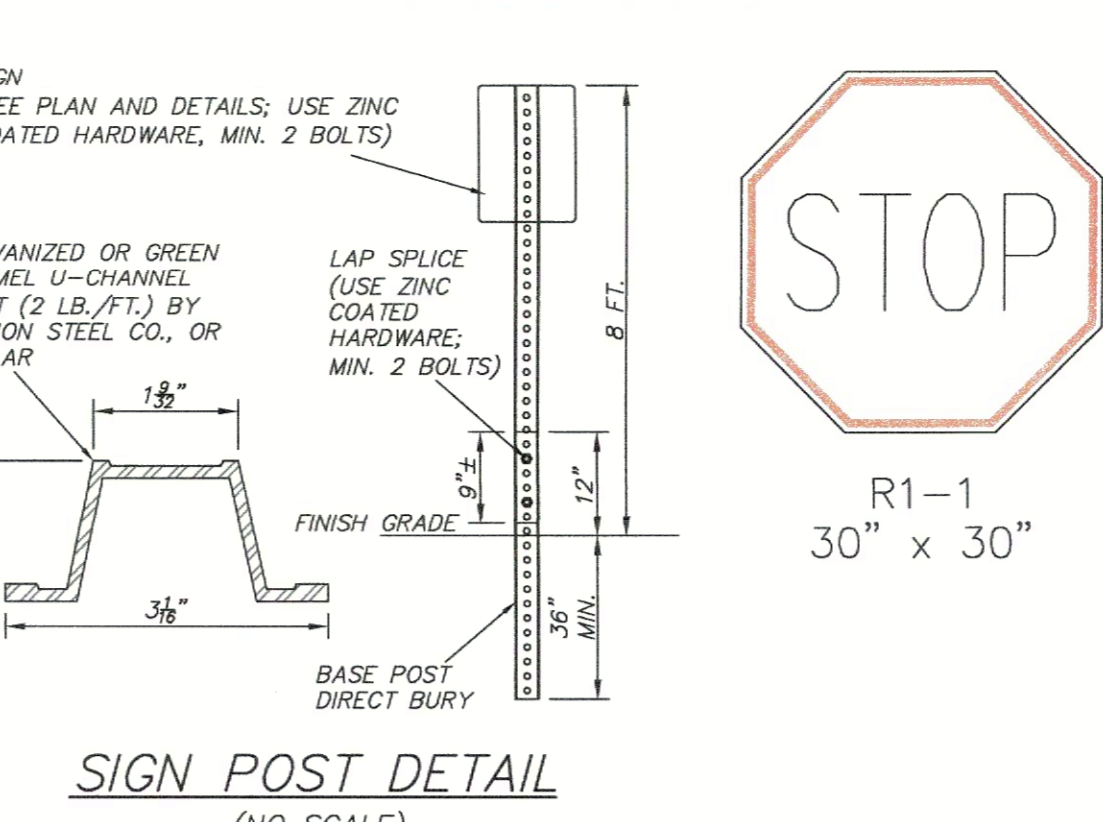
DRAINAGE:
 1. IF DRAINAGE PIPES OR SWALES ARE TO BE INSTALLED, THEY SHALL BE CONSTRUCTED FROM DOWNSTREAM UP AND CONSTRUCTION SHALL INCLUDE THE PLACEMENT OF OUTFALL RIPRAP AND OTHER MITIGATIVE MEASURES SHOWN ON THE PLAN.
 2. PRIOR TO THE COMMENCEMENT OF CONSTRUCTION, HAY BALES OR OTHER SUITABLE METHODS TO ENTRAP SEDIMENT SHALL BE PLACED DOWNSTREAM.
 3. THE TOE OF EMBANKMENTS SHALL BE STABILIZED IMMEDIATELY, MULCHED AND TACKED DOWN BY SUITABLE MEANS.
 4. WHEN WORKING IN THE VICINITY OF WETLANDS, TOP SOIL SATURATED WITH WATER SHALL BE REMOVED, AND CONTAINED PRIOR TO BEING USED.
 5. AREAS LEADING TO WETLANDS SHALL HAVE HAY BALE BARRIERS INSTALLED ACROSS THEM IN ARCS POINTING DOWN THE HILL AT INTERVALS SUFFICIENT TO MITIGATE RUNOFF CARRYING SEDIMENT.
 6. DURING PERIODS OF INTENSE RAINFALL, OR IF THE PROJECT IS TO BE LEFT FOR A PERIOD OF TIME, CONSIDERATION SHOULD BE GIVEN TO SUPPLEMENT HAY BALE BARRIERS WITH EITHER CRUSHED STONE OR ARMORED BARRIERS. CONSIDERATION MAY ALSO BE GIVEN TO DIVERTING RUNOFF INTO TEMPORARY SEDIMENTATION CONTROL AREAS.
 7. WHENEVER PRACTICAL, NATURAL VEGETATION SHALL BE RETAINED, PROTECTED AND SUPPLEMENTED.

GRUBBING AND STRIPPING:

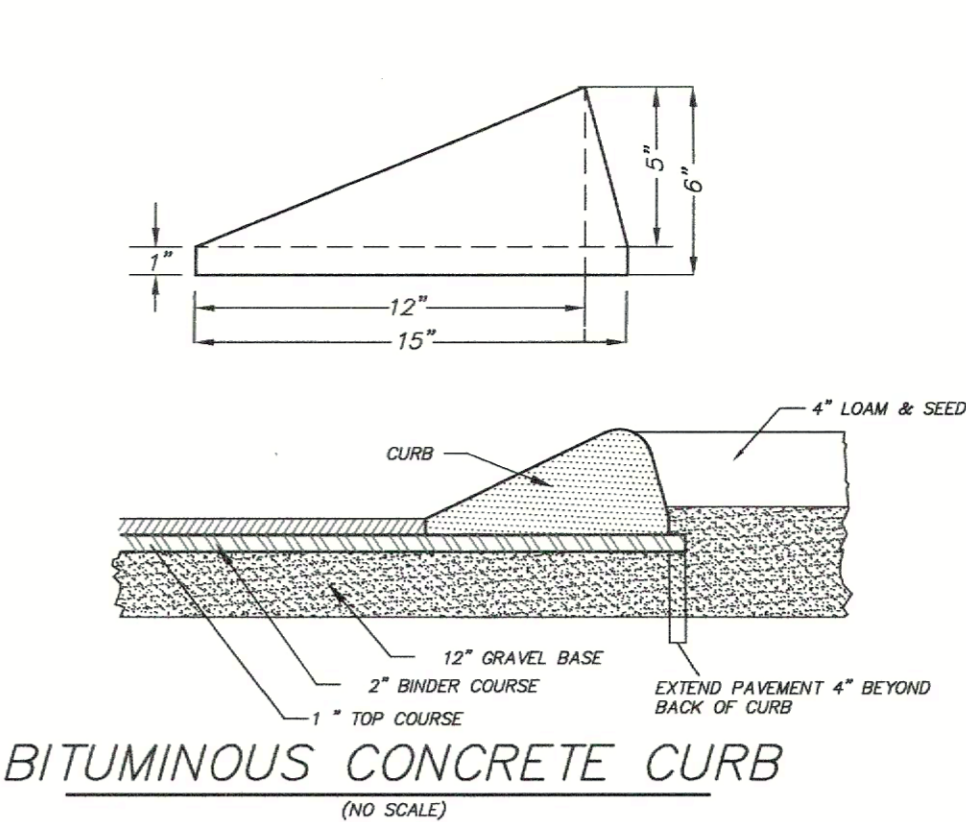
1. TOP SOIL SHALL BE RETAINED AND STOCKPILED FOR LANDSCAPING PURPOSES.
 2. GRUBBING AND STRIPPING OF SLOPES LEADING TO WETLAND AREAS SHOULD NOT BE UNDERTAKEN DURING PERIODS OF INTENSE RAINFALL.
 3. TOP SOIL STOCKPILE LOCATIONS ARE DEPICTED ON THE SITE DEVELOPMENT PLAN, THE EROSION CONTROL PLAN, AND/OR THE CONSTRUCTION PHASING PLAN AND SHALL BE ADHERED TO.
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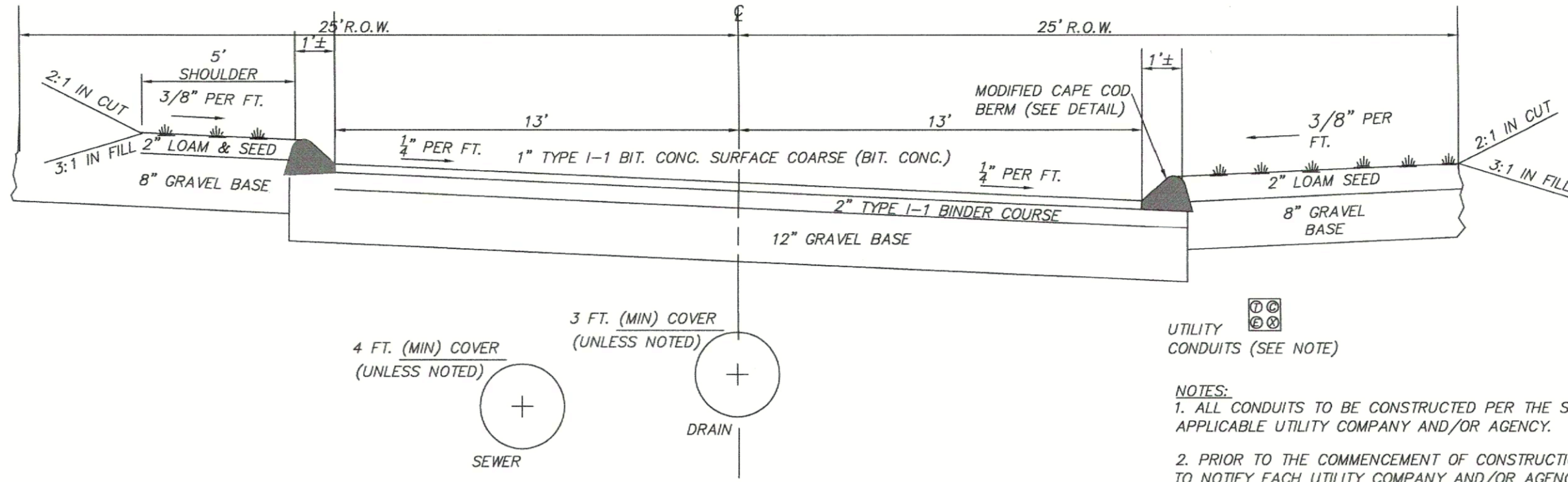
STRAW WATTLE & SILT FENCE DETAIL
NO SCALE



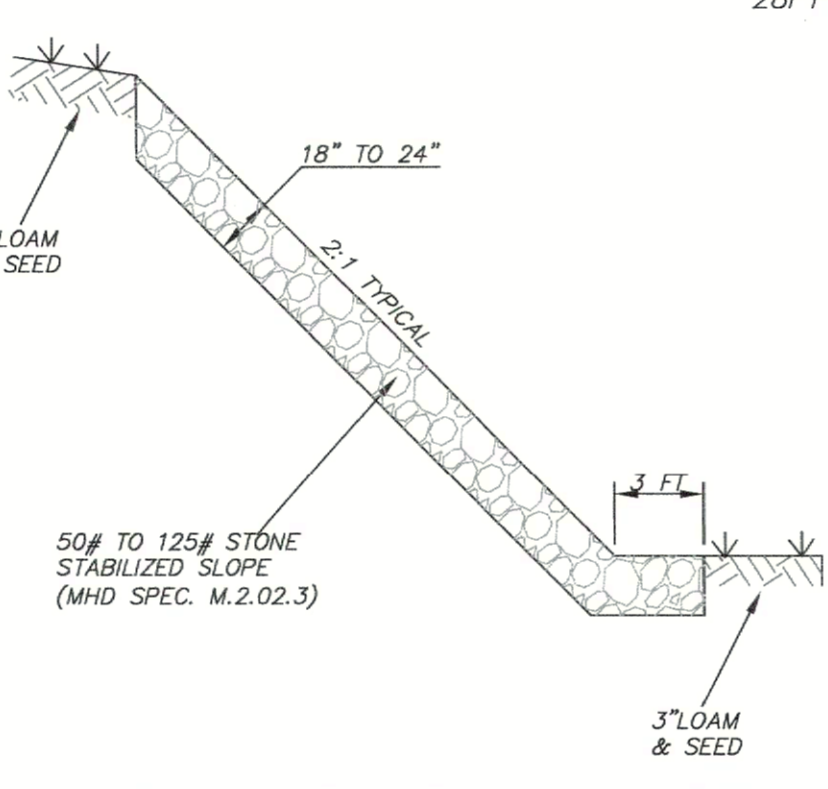
SIGN POST DETAIL
(NO SCALE)



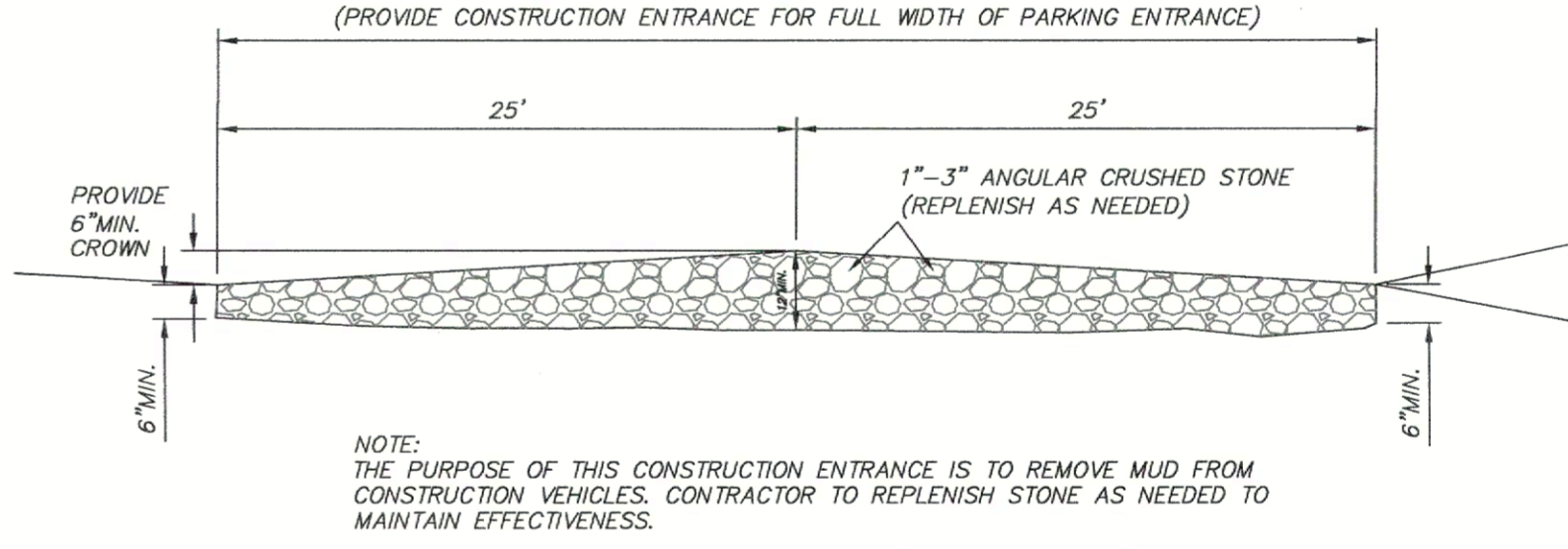
BITUMINOUS CONCRETE CURB
(NO SCALE)



TYPICAL ROADWAY CROSS-SECTION
28FT WIDE - NO SCALE



STABILIZED ROCK SLOPE
NO SCALE

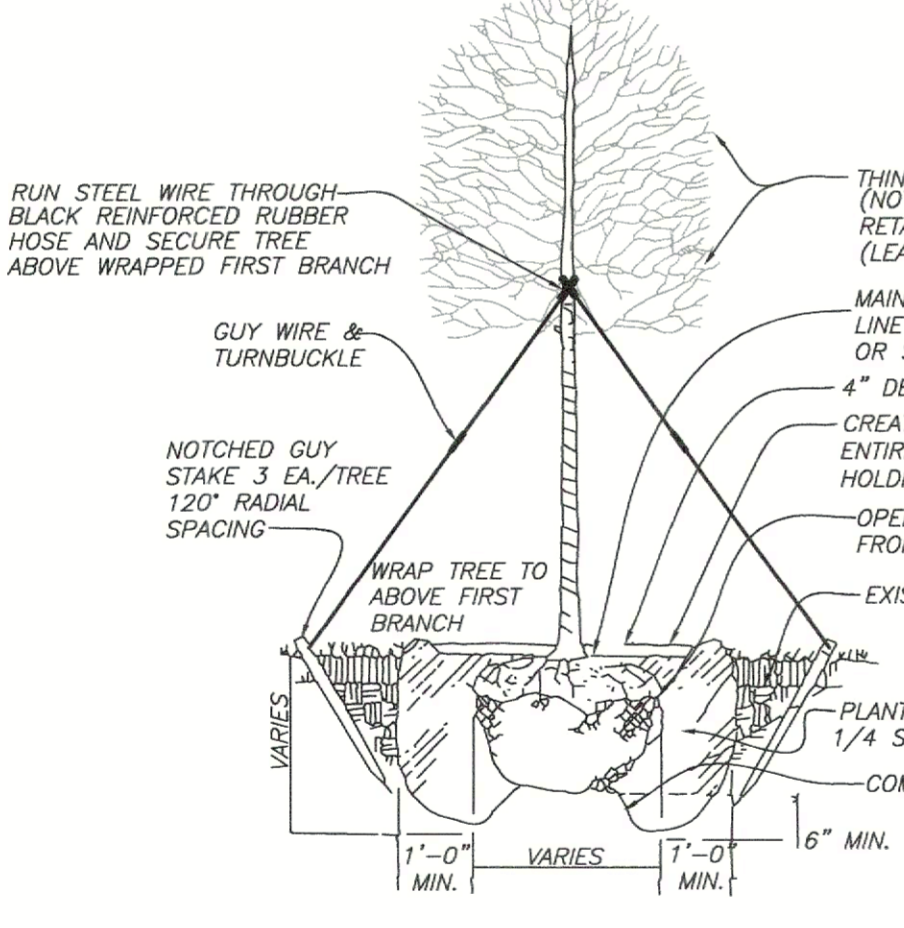


CONSTRUCTION ENTRANCE
NO SCALE

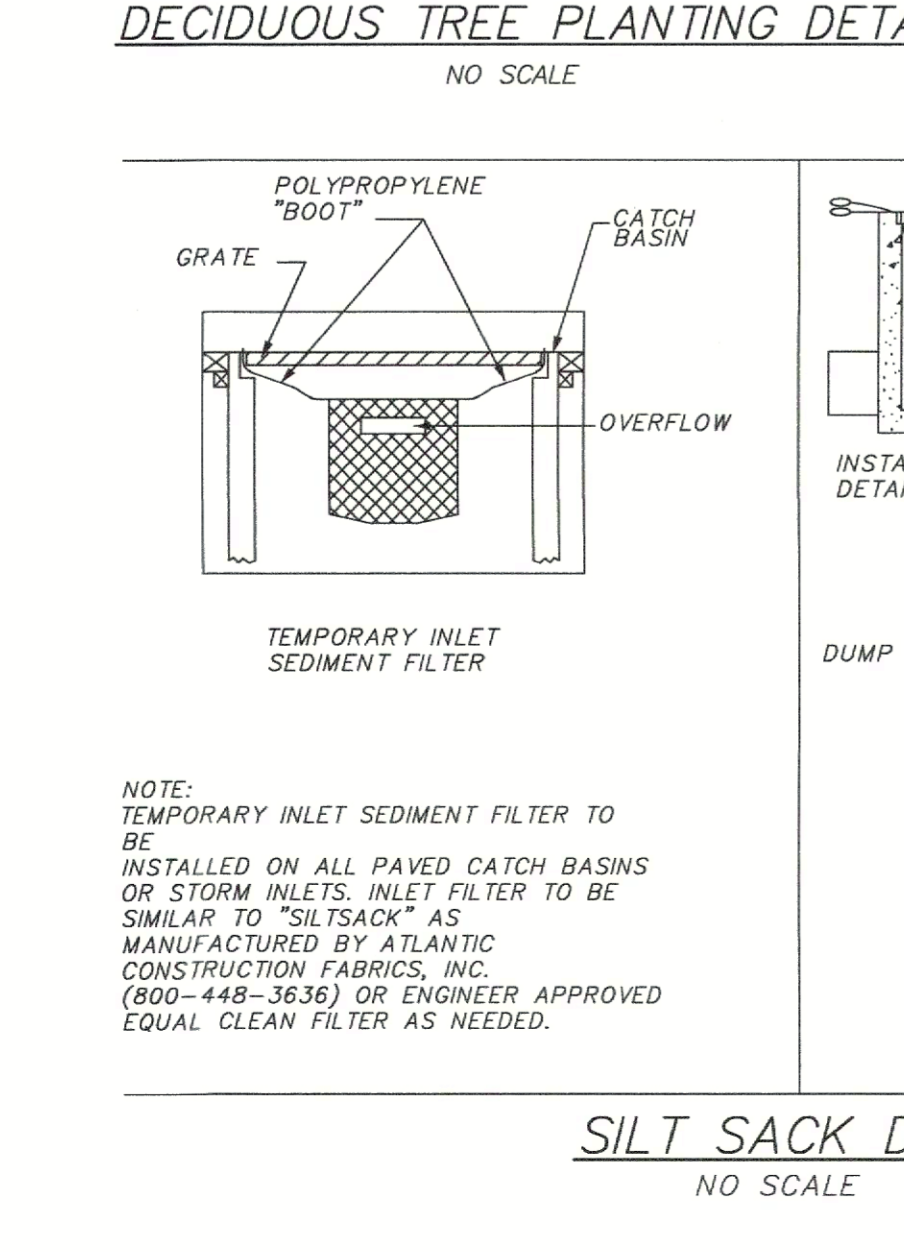
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LEICESTER PLANNING BOARD

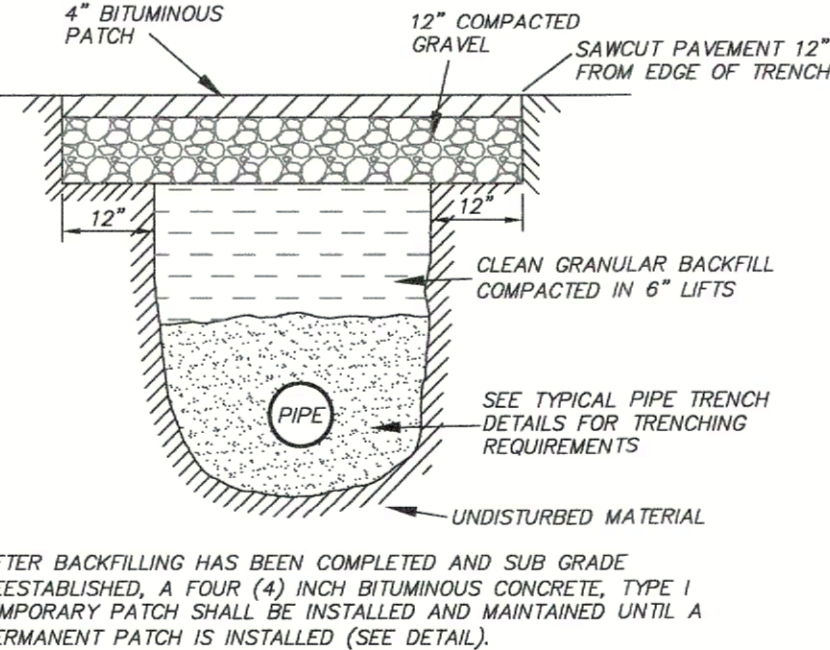
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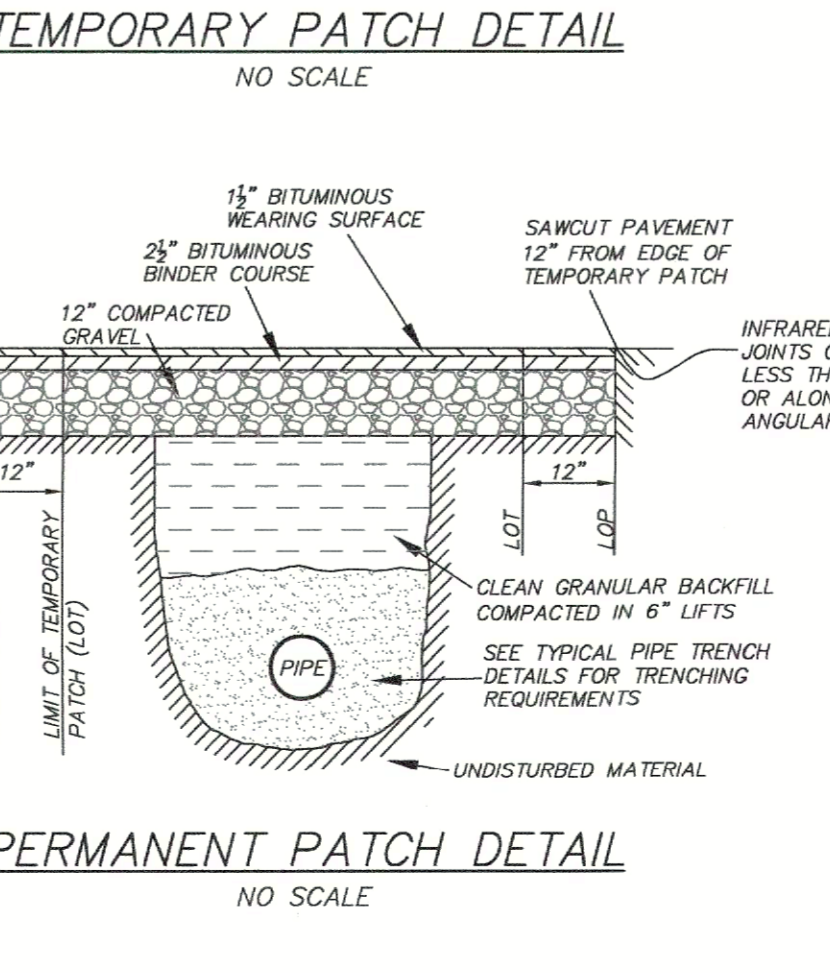
SHRUB PLANTING DETAIL
NO SCALE



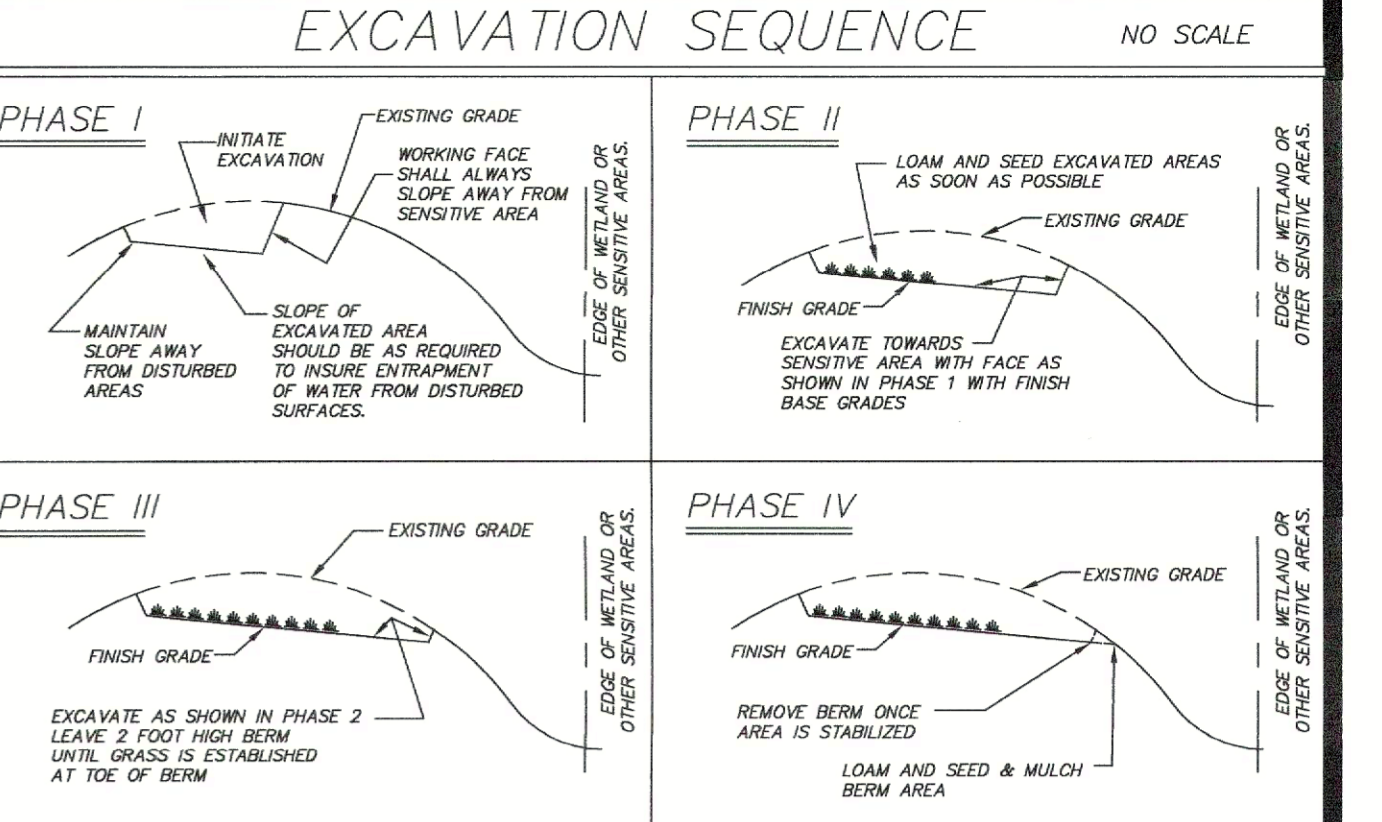
SILT SACK DETAIL
NO SCALE



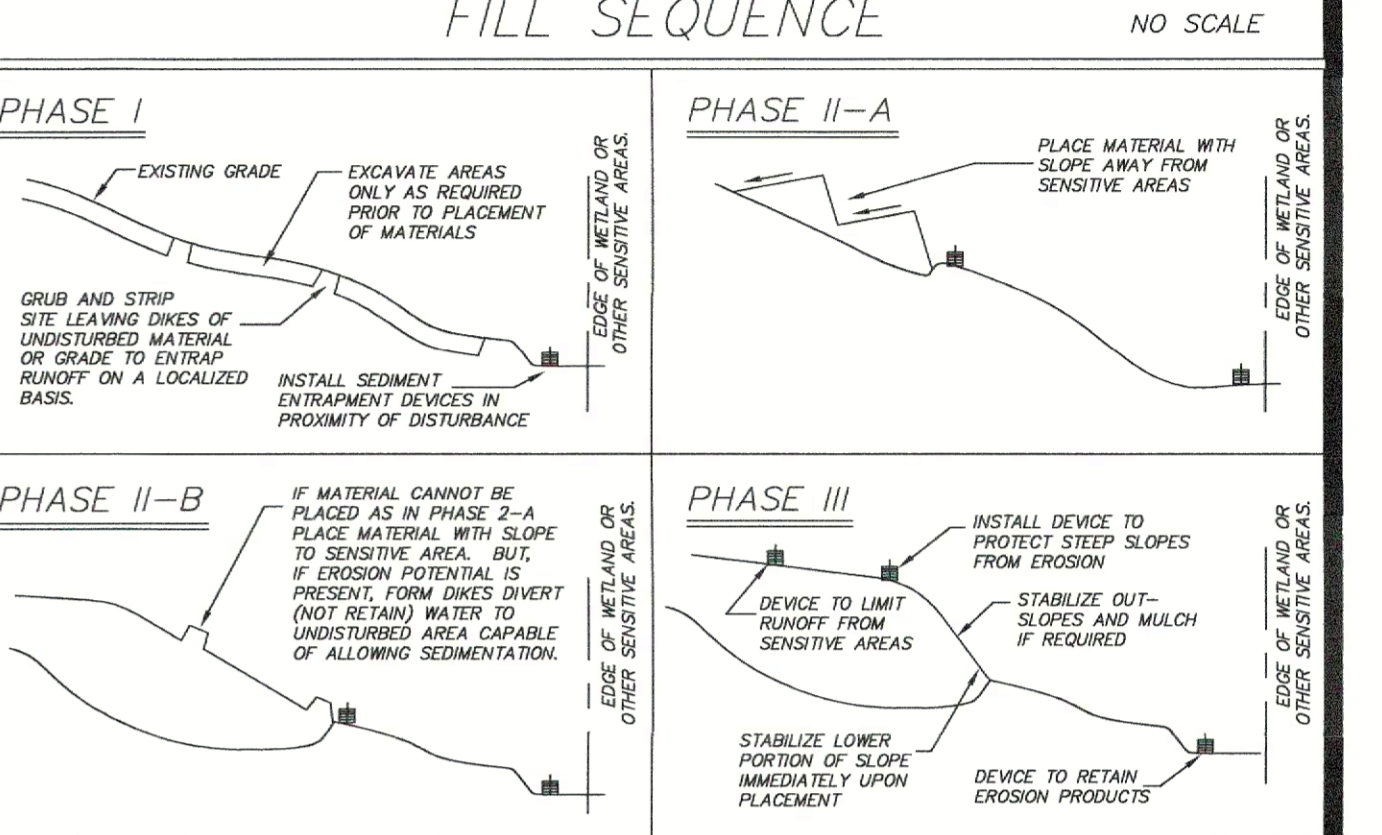
TEMPORARY PATCH DETAIL
NO SCALE



PERMANENT PATCH DETAIL
NO SCALE



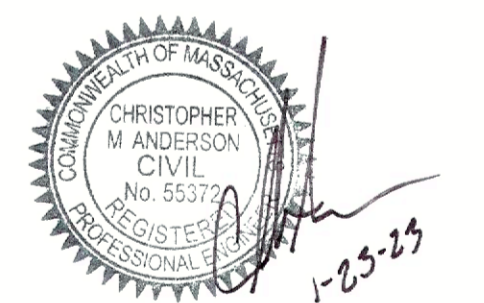
EXCAVATION SEQUENCE
NO SCALE



FILL SEQUENCE
NO SCALE

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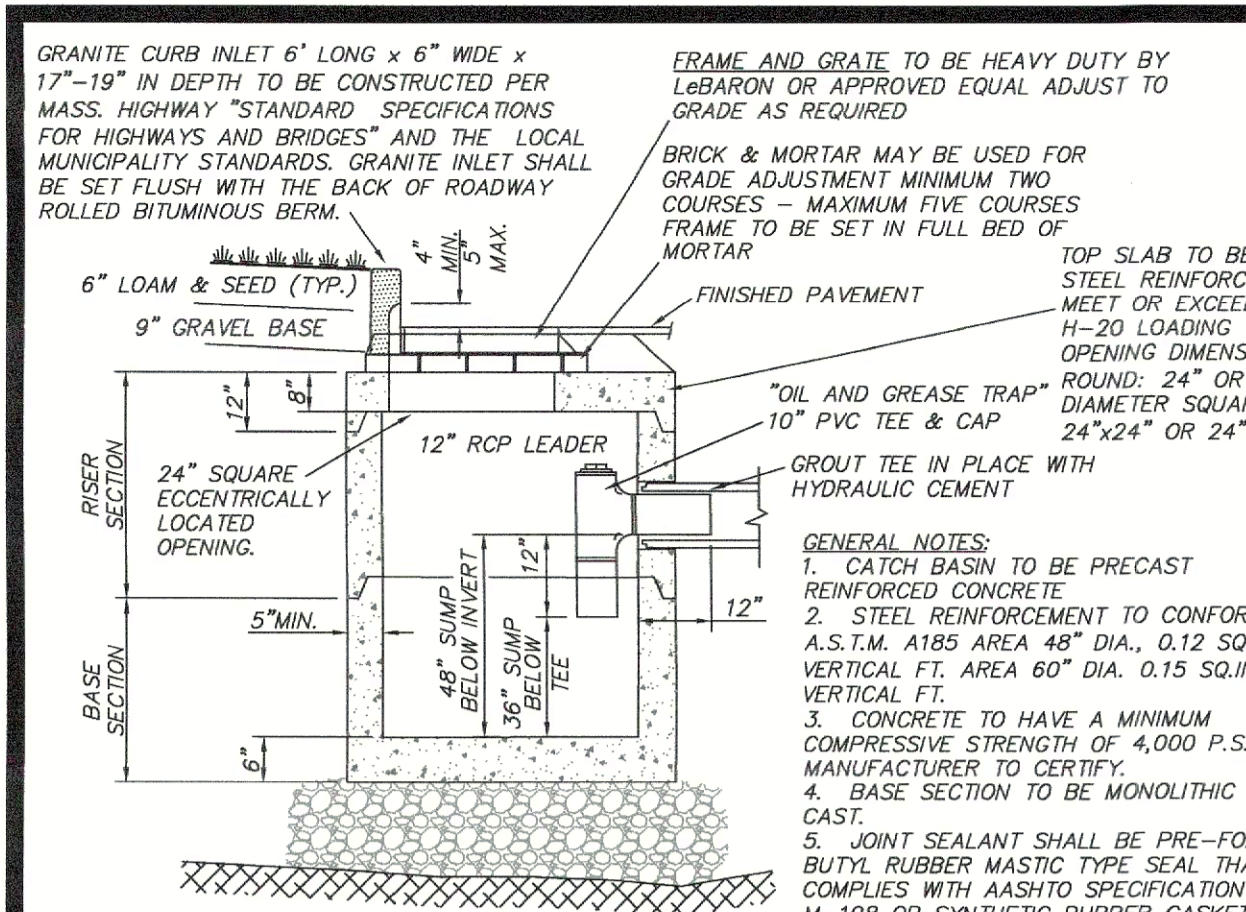
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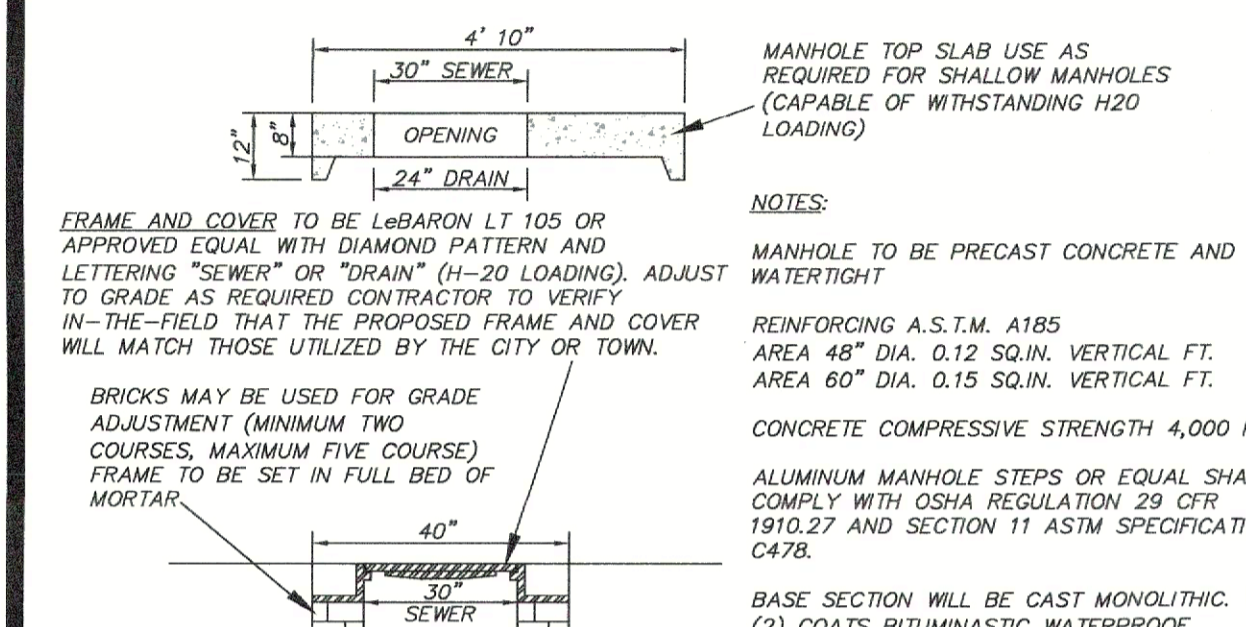
CONSTRUCTION DETAILS IN LEICESTER, MASSACHUSETTS

PREPARED FOR:
 ZP BATTERY DEVCO, LLC
 BRENDAN GOVE
 10 E WORCESTER STREET SUITE 3A
 WORCESTER, MASSACHUSETTS 01604
 TEL:

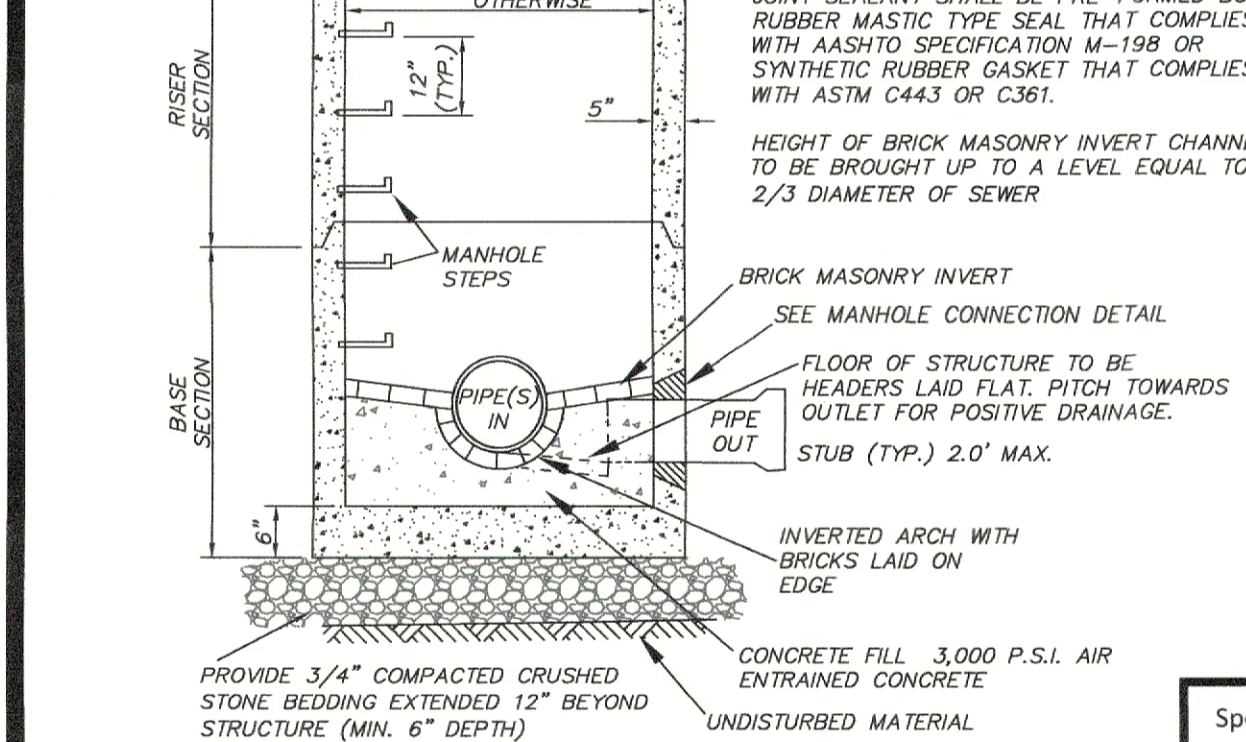
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CHKD:	WDH	APPD:	WDH	DATE:	NOV 30, 2022
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TAB:	(5-6)DET	SHEET:	5 OF 6	PLAN NO:	CC-17-38



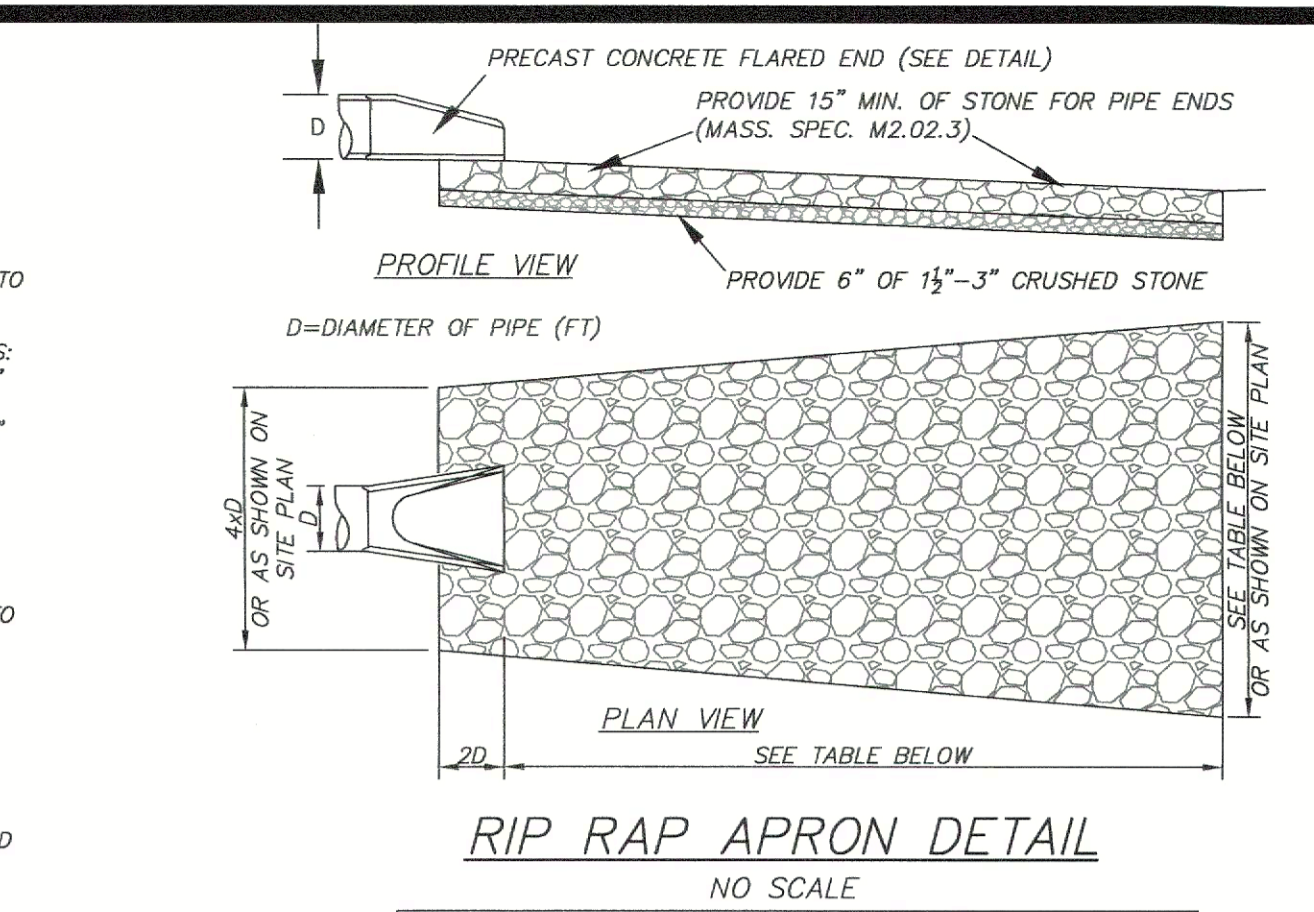
TYPICAL PRECAST CATCH BASIN
NO SCALE



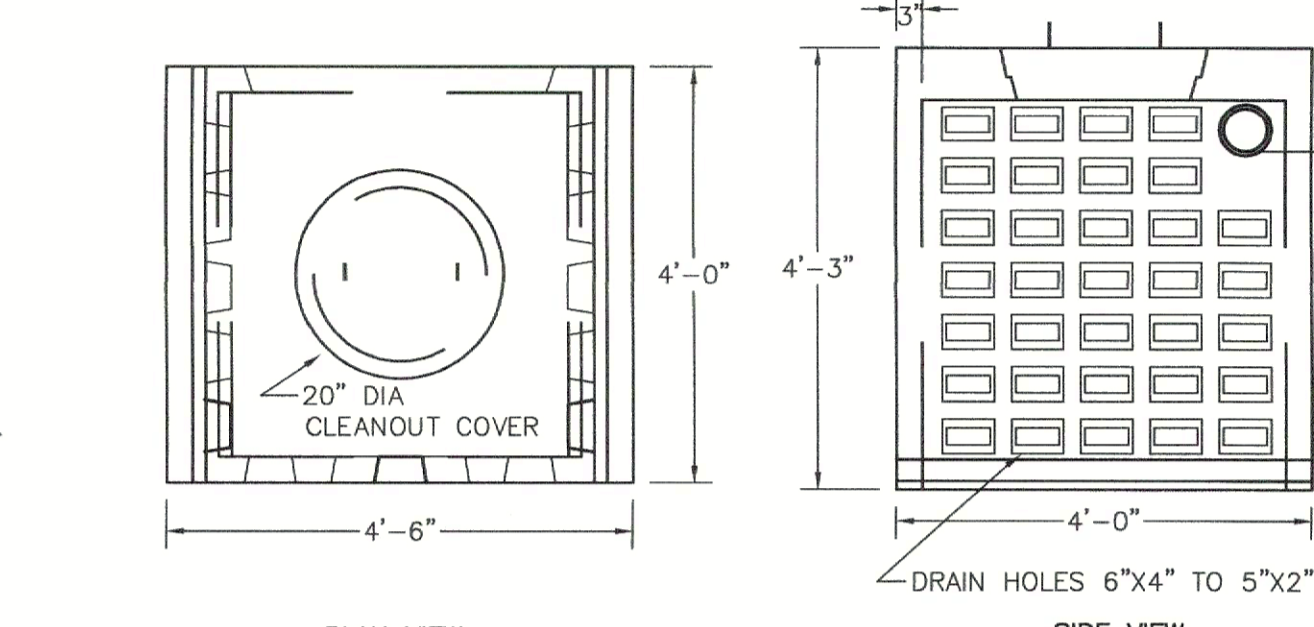
TYPICAL PRECAST MANHOLE
(FOR MANHOLES LESS THAN 12' DEEP)
NO SCALE



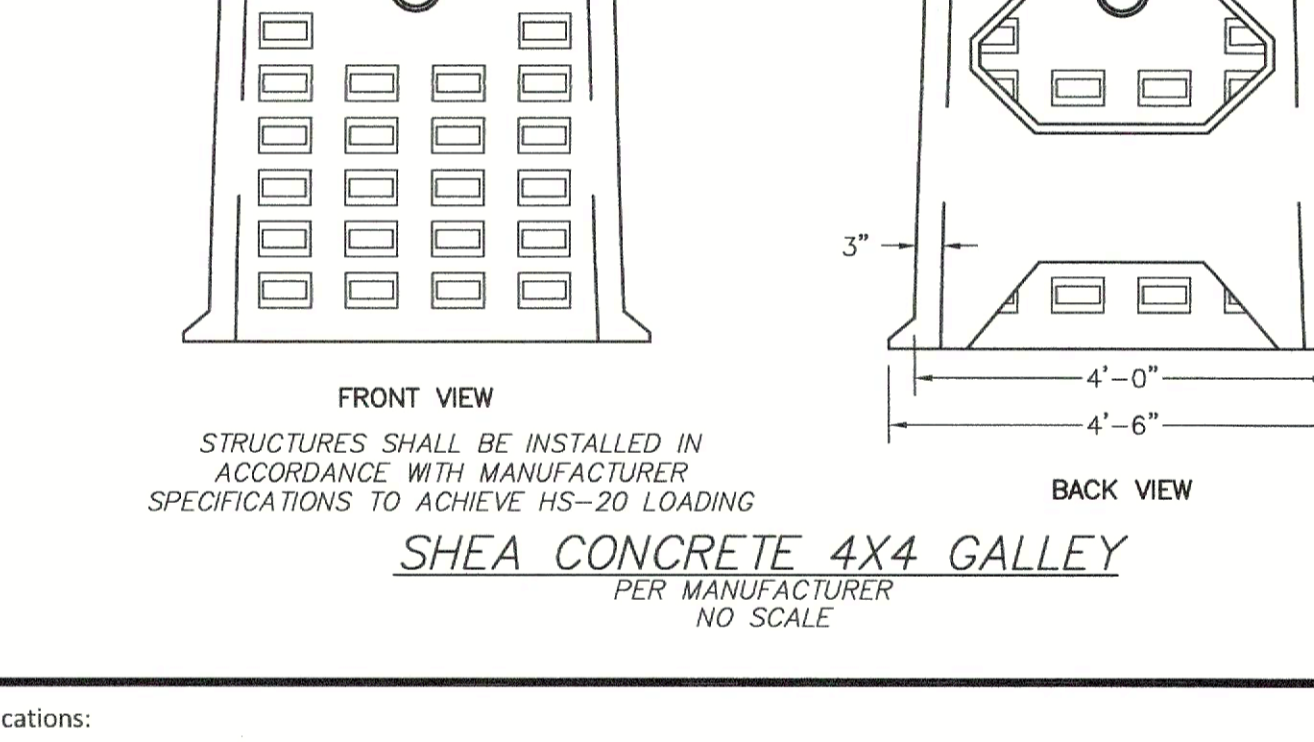
RIP RAP APRON DETAIL
NO SCALE



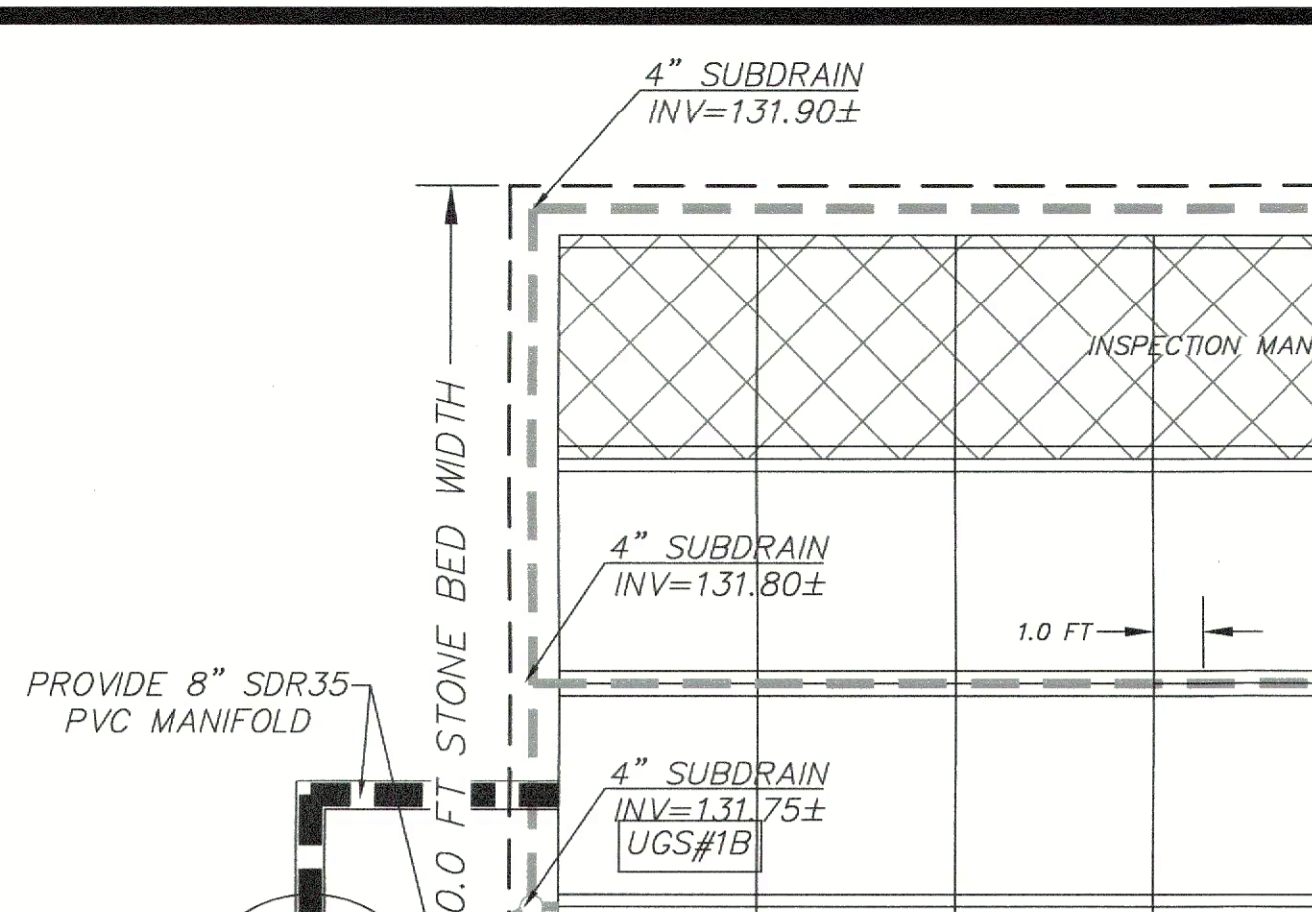
SHEA CONCRETE 4x4 GALLEY
PER MANUFACTURER
NO SCALE



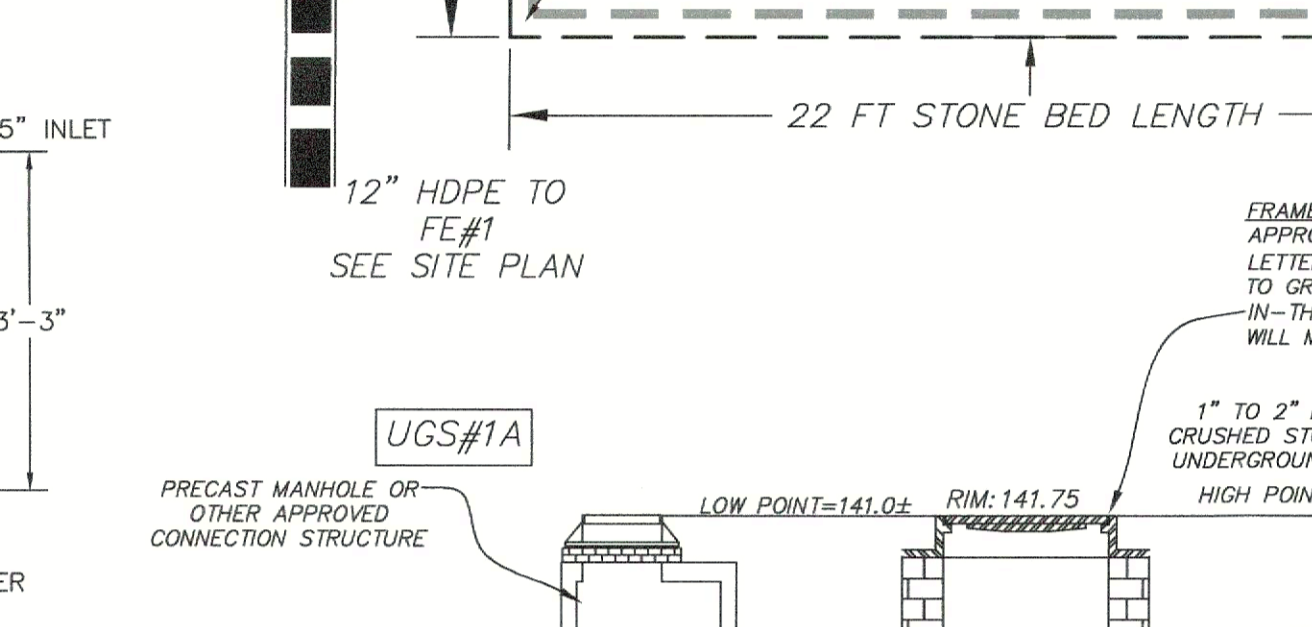
UNDERGROUND STORAGE AREA#1A-1B - UGS#1 PROFILE
PROFILE VIEW - SEE SITE PLAN
NO SCALE



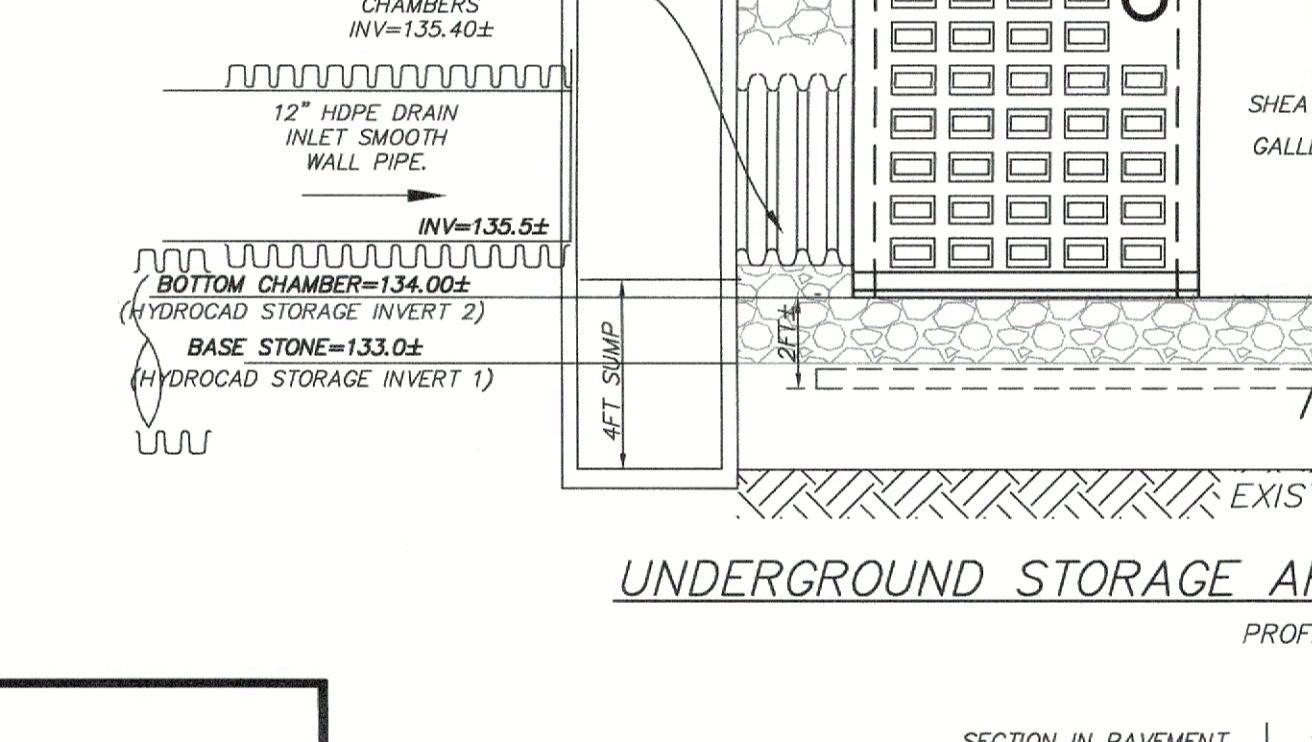
WOOD GUARD RAIL DETAIL
NO SCALE



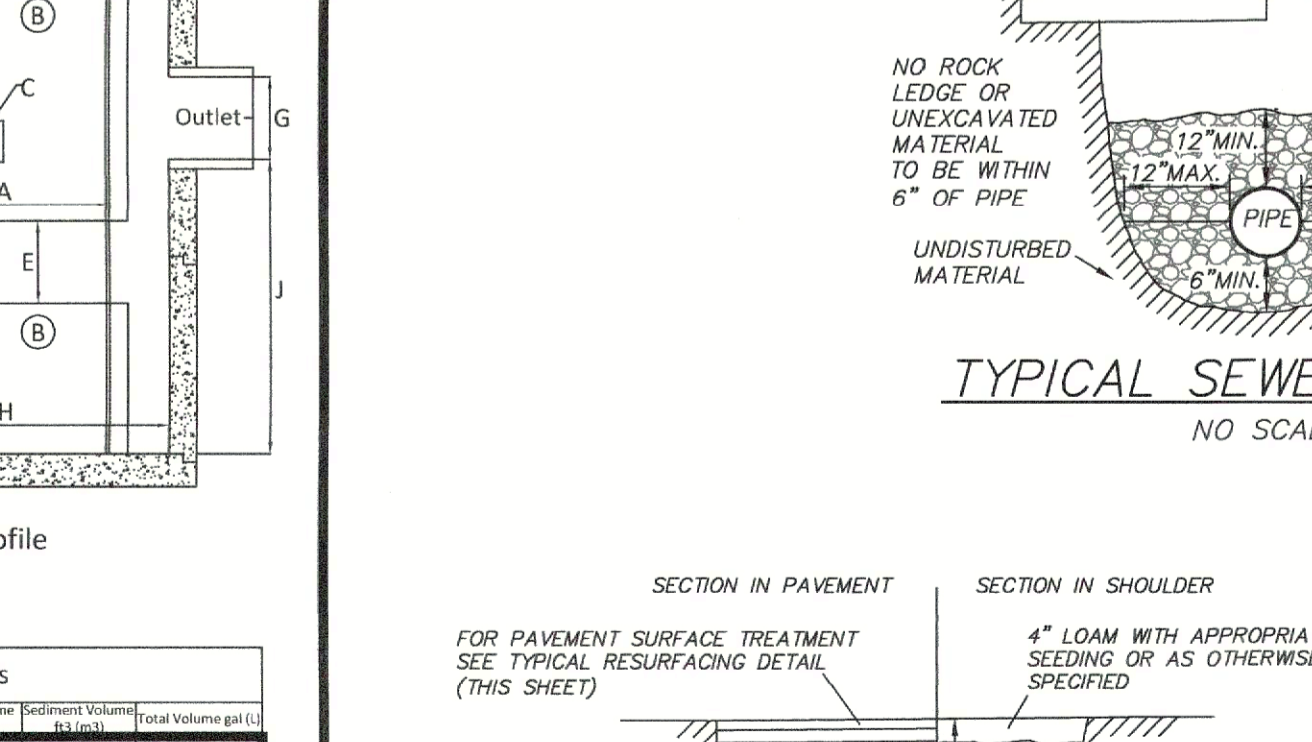
TYPICAL HYDRANT DETAIL
NO SCALE



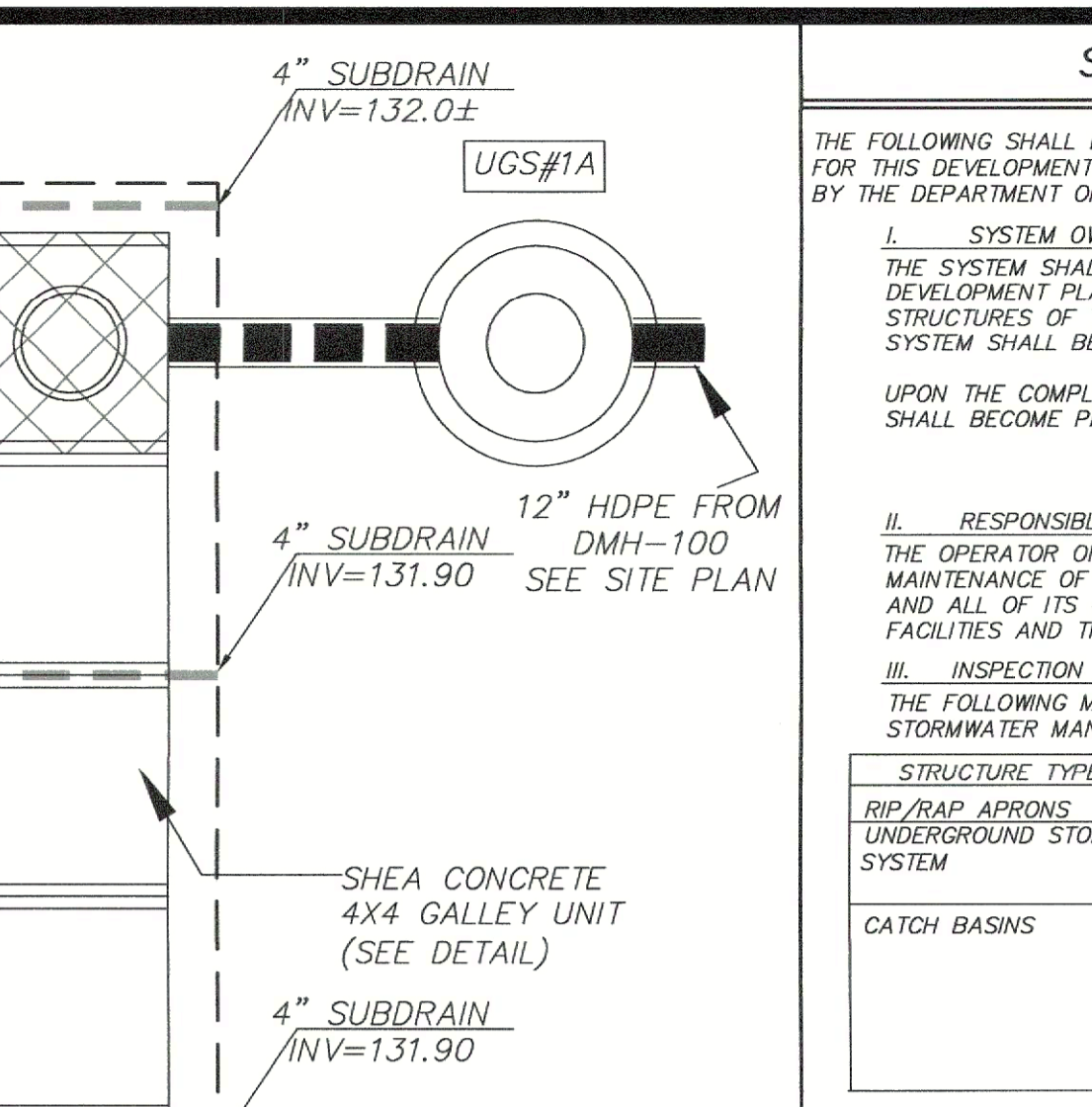
TYPICAL SEWER TRENCH
NO SCALE



TYPICAL DRAIN TRENCH
(REINFORCED CONCRETE PIPE ONLY)
NO SCALE



TYPICAL WATER TRENCH
NO SCALE



PIPE DIAMETER	LENGTH	TERMINUS WIDTH
12-INCH (FE#1)	44.0 FEET	25.0 FEET

STORMWATER OPERATION AND MAINTENANCE PLAN

THE FOLLOWING SHALL BE CONSIDERED THE OPERATION & MAINTENANCE PLAN (OMP) FOR THE STORMWATER COLLECTION FACILITY FOR THIS DEVELOPMENT. THIS OMP HAS BEEN PREPARED IN ACCORDANCE WITH THE STORMWATER MANAGEMENT POLICY AS ISSUED BY THE DEPARTMENT OF ENVIRONMENTAL PROTECTION.

- I. SYSTEM OWNERSHIP**
THE SYSTEM SHALL INCLUDE THE DRAINAGE INFRASTRUCTURE AND ALL OF ITS COMPONENTS AS SHOWN ON THE SITE DEVELOPMENT PLANS, INCLUDING THE DETENTION FACILITIES AND OUTFALL AREAS OF THE DRAINAGE SYSTEM. THE STRUCTURES OF THE SYSTEM SHALL INCLUDE THE DRAINAGE SWALES AND THE OUTFALL & CONTROL STRUCTURES. THE SYSTEM SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CONSTRUCTION DETAILS AND THE APPROVED PLANS.

UPON THE COMPLETION OF CONSTRUCTION THE DRAINAGE SYSTEM DESCRIBED ABOVE AND AS DEPICTED ON THE SITE PLANS SHALL BECOME PROPERTY OF THE LAND OWNER.
- II. RESPONSIBLE PARTIES**
THE OPERATOR OF THE LAND OWNER SHALL BE CONSIDERED THE RESPONSIBLE PARTY FOR THE OPERATION AND MAINTENANCE OF THE STORMWATER MANAGEMENT SYSTEM. THE SYSTEM SHALL INCLUDE THE DRAINAGE INFRASTRUCTURE AND ALL OF ITS COMPONENTS AS SHOWN ON THE APPROVED PLANS. THE SYSTEM SHALL ALSO INCLUDE THE DETENTION FACILITIES AND THE OUTFALL AREAS OF THE DRAINAGE SYSTEM.
- III. INSPECTION & MAINTENANCE SCHEDULE**
THE FOLLOWING MAINTENANCE SCHEDULE SHALL BE FOLLOWED IN ORDER TO MAINTAIN THE EFFECTIVENESS OF THE STORMWATER MANAGEMENT SYSTEM.

STRUCTURE TYPE	INSPECTION	MAINTENANCE	TASK
RIP/RAP APRONS UNDERGROUND STORAGE SYSTEM	TWICE A YEAR	EVERY 10 YEARS ANNUALLY INSPECT SEDIMENT DEPTH AT INSPECTION POINT	REMOVE DEBRIS & ADD STONE
CATCH BASINS	QUARTERLY AND AT THE END OF END OF THE FOLIAGE AND SNOW REMOVAL SEASONS	QUARTERLY, OR WHENEVER THE DEPTH OF DEPOSITS IS GREATER THAN OR EQUAL TO ONE HALF THE DEPTH FROM THE BOTTOM OF THE INVERT OF THE LOWEST PIPE	REMOVE SEDIMENT FROM SUMPS ***GRATES TO BE KEPT CLEAR THROUGHOUT THE YEAR***

Specifications:

- Any alternate equal must be independently tested to the 2002 NIDEP Laboratory Separator Protocol. Separator must be sized based on this data.
- Alternate equal must be NITE Certified, MASTER Verified, Massachusetts Plumbing Board approved and ComDOT approved.
- Any testing performed by the manufacturer and/or field testing is unacceptable to demonstrate an alternate equal.
- Grab sampling has been deemed inaccurate by multiple independent agencies. Only mass balance testing will be accepted to verify an alternate equal.
- The separator must be designed based on the following criteria:

Flow Criteria	
Water Quality Flow Rate cfs (L/s)	
Peak Design Flow Rate cfs (L/s)	

TSS Removal Criteria	
Annual TSS Removal (%)	
NIDEP/EV Canada TSS	
OK110 Sand	
City of Toronto	
Other	

Hydroguard Dimensions / Capacities							
Model	Diameter (in)	Length (ft)	Volume (cu ft)	Capacity (gpd)			
HG 4	4 (1.2)	5 (1.5)	32 (0.8)	21 (535)	65 (240)	35 (0.9)	465 (1779)
HG 5	5 (1.5)	5.5 (1.7)	40 (1.0)	24 (610)	130 (492)	55 (1.5)	805 (3057)
HG 6	6 (1.8)	6 (1.8)	48 (1.2)	30 (760)	200 (757)	85 (2.4)	1265 (4803)
HG 7	7 (2.1)	6.5 (2.0)	56 (1.4)	36 (915)	310 (1173)	115 (3.2)	1870 (7082)
HG 8	8 (2.4)	7 (2.1)	64 (1.6)	42 (1065)	455 (1722)	145 (4.1)	2630 (9962)
HG 10	10 (3.0)	9 (2.7)	80 (2.0)	54 (1370)	855 (3236)	330 (9.0)	5285 (20014)
HG 12	12 (3.6)	10.5 (3.2)	96 (2.4)	60 (1524)	1500 (5678)	480 (13.5)	8880 (33624)

Hydroworks Hydroguard

PROJECT: _____
LOCATION: _____
REVISION DATE: 08/05/2020

DEFINITIVE PLAN

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CONSTRUCTION DETAILS
IN
LEICESTER, MASSACHUSETTS

PREPARED FOR:
ZP BATTERY DEVCO, LLC
BRENDAN GOVE
10 E WORCESTER STREET SUITE 3A
WORCESTER, MASSACHUSETTS 01604
TEL: _____

CALC: CMA	DRWN: CMA	SCALE: NA
CHKD: WDH	APPD: WDH	DATE: NOV 30, 2022
SRV: JEF	FB: 71-22	JOB NO: 3010
TAB: (5-6) DET	SHEET 6 OF 6	PLAN NO: C-17-38

LEICESTER PLANNING BOARD

DATE: _____