APPLICATION FOR SPECIAL PERMIT TO OPERATE MARIJUANA CULTIVATION FACILITY

Bullards Crossing (408-020-000)
Hinsdale, MA 01235

January 5, 2021

FFD Enterprises MA, Inc.
40 Woodland Street
Hartford, CT 06105

AGENDA

SPECIAL PERMIT APPLICATION

1. Application
2. Special Permit Narrative
3. MA Secretary of State Entity Summary
4. CCC License
5. Security Plan
6. Traffic Evaluation
7. Stormwater Management Plan
8. Site Plan

TAB 1

Town of Hinsdale

39 South Street
Hinsdale, MA 01235

Select Board
413-655-2300, x345
selectboard @hinsdalemass.gov

To: **The Select Board**

From: FFD Enterprises MA, Inc. Date: 11/27/2020

Address: 40 Woodland Street

Hartford, CT 06105

Home: _____ Cell: (860) 490-0359 Email: bzachs@finefettle.com

The undersigned hereby petitions the Select Board for a:

Variance ☐ **Special Permit** ☒

from the terms of the Zoning Bylaw(s) of the Town of Hinsdale, at the following premises:

Applicant requests a special permit pursuant to Section 15(e) of the Zoning Bylaws of the Town of Hinsdale to operate a Marijuana Cultivation Facilityat Bullards Crossing` (408-020-000)

in the following respect:

_____

_____

_____;

or any limitations, extension, change, alteration or modification of use, or method of use may at hearing appear as necessary or proper in the premises.

FFD Enterprises MA, Inc.

Signature: By: _____ Date 11/27/2020

Benjamin Zachs, its President

Please attach appropriate plans, specifications, and other relevant supporting materials.

Thank you.

TAB 2

Berkshire Design Group

December 3, 2020

Hinsdale Select Board
39 South Street
Hinsdale, MA 01235

RE: FFD Enterprises MA, Inc.
Marijuana Cultivation Facility
Bullards Crossing, Hinsdale, MA

Dear Board Members:

On behalf of our client FFD Enterprises MA, Inc. we respectfully submit this application for Special Permit for a marijuana cultivation facility on Bullards Crossing in Hinsdale.

The proposed operation will be outdoor cultivation of adult-use cannabis, with greenhouse and outdoor cultivation areas, as well as a supplemental head house building where no cultivation of plants will take place. The outdoor field areas will account for the majority of cultivation space and will include two fields totaling 80,000 ft^2. There will be four greenhouses, each 2,750 ft^2, for a total of 91,000 ft^2 of cultivation space. The total employment at the site will include approximately 20 year-round employees, with up to 60 employees during peak periods for the full scope of operations for cultivation, post-harvest, and extraction/processing. The head house and site plan will be designed to accommodate this number of employees with adequate parking and facilities. The full premises for all cultivation areas and the head house will be completely fenced and within a secure area under 24-hour surveillance.

The greenhouses will be used for vegetative and flowering plant batches. Vegetative plant groupings during the spring will contain enough plants to supply both the outdoor fields and greenhouse areas with flowering plants for each growth season. Once moved to the outdoor field areas, plants will remain planted for one full growth cycle over the summer/fall seasons and be harvested from late September through October. Plants flowered in greenhouses will be spaced appropriately for flowering growth and will be grown and harvested over one summer/fall cycle per year. Vegetative batches will be grown in greenhouses during the off season to preserve genetic cultivars for future plantings.

The 10,800 ft^2 head house building will provide all supplemental use areas for the outdoor fields and greenhouse operations. This building will contain employee facilities such as restrooms, lockers, break room, and offices, as well as a secure product storage room, and any required security systems for the entire site. The main areas to supplement cultivation operations will be the drying room, garage, open work area, trim/packaging room, extraction/processing areas, and water/mechanical room. The water/mechanical room will house all equipment related to water storage and pumping of crop water to outdoor fields and greenhouses. The open work area will be a staging area during harvest operations for initial inspection and processing of harvested plant material. This is where plants will be inspected, weighed, and logged prior to further processing. The drying room will be used to hang and dry harvested plant material. The trim and packaging room is where dried, and/or live/frozen plant materials will be separated from stems, trimmed, and made ready for sale or for extraction/processing. All finished and/or packaged products will be stored in the secure product room while onsite. The only exception is for any product that is still in process or is in the process of being moved or shipped to another secure location.

The extraction area will consist of a walk-in freezer, extraction room, distillation room, and a commercial kitchen. The walk-in freezer will be used to freeze and store live or dried plant material prior to processing to

preserve quality over longer periods of time. The extraction room is where cannabinoid oils will be extracted from plant material. The distillation room is where extracted concentrates will be processed to create distillate. The commercial kitchen will be utilized to formulate distillate into a variety of edible products.

Water for irrigation, domestic use, and fire protection will be supplied by a new private well. A new septic tank and leach field will be installed and connected to the head house restroom facilities.

With this operation FFD Enterprises intends to provide low cost, high quality products to the commercial cannabis market, as well as provide new job opportunities to local workers and establish lasting and meaningful relationships with local community members.

Site Overview

The property is located on the south side of Bullards Crossing on a former gravel pit, approximately a half mile east of Rt. 8. It is accessed only from Bullards Crossing. The lot contains approximately 20 acres of land, which is covered almost entirely in meadow grasses.

The property is zone R-5. Under the Hinsdale Zoning Bylaw, a marijuana cultivation facility may be allowed by special permit from the Select Board.

Intensity Regulations

The property meets the general intensity requirements for lot size and setbacks, which are less restrictive than the intensity regulations for Marijuana Establishments.

The proposed headhouse building will be one story. The headhouse building and greenhouses will be 18’ 6” in height.

General Regulations

Parking & Loading

Under normal work week conditions, the employee headcount is anticipated to be a maximum of 20 full-time staff, and during harvest periods, a maximum of 60 employees. A dedicated gravel parking area is proposed within the security fence on the north side of the head house with 26 dedicated parking spaces, including 2 ADA spaces. During the peak harvest period, additional parking will utilize “farm style” parking in the grass alongside the gravel road north of the of fields that can accommodate an additional 30-40 spaces.

Loading for the headhouse will occur through garage bays on the north side of the headhouse. This area includes three roll-up doors and two pedestrian doors. A gravel access area outside the garage bays is proposed. Deliveries of raw materials, typical for an agricultural operation, will generally be made with a box truck.

Cannabis product will be picked up by un-marked vehicles, typically cargo vans or sport utility vehicles. These vehicles will approach the headhouse on the north side via roll-up doors for secure loading. Pickups, which are expected to occur 5 times per week during peak times immediately after harvest, and once per week at other times, are scheduled at variable hours to prevent tracking. All cannabis product is transported by a state-licensed transport company, which may or may not be the same entity that operates the cultivation facility. Storage of materials (both cannabis and non-cannabis) will be inside the headhouse.

Signs

Proposed signs will be located at the entrance on Bullards Crossing. Signage will list the address of the property only. Neither the name of the owner/operator, nor the nature of the grow operation will be identified on the signs.

Special Permit Criteria

The project is designed to meet the standards established by §6-E.5 of the Hinsdale Zoning Bylaw (the "Bylaw"). Specifically:

1. The proposed project complies with all provisions of this Bylaw as demonstrated by the Site Plan drawings and this application narrative. The project supports the purpose and intent of the bylaw by bringing a new agricultural industry to existing vacant, cleared land, and by utilizing outdoor grow techniques to maximize the preservation open space. The proposed project is in harmony with the Town's existing character of open space of low density of population and deliberate pace of growth as described in the Zoning Bylaw.

2. The perimeter of the cultivation facility will be more than 600 feet from the nearest structure, and is surrounded by gravel excavation operations, a propane storage facility, a railroad and protected open space. The proposed safety and security plan is designed to be unobtrusive while maintaining a safe site. Despite the care and control required to handle the product, the proposed site will fundamentally operate like any other agricultural facility.

3. The site will generate minimal additional traffic. A traffic generation summary is included with the application. The proposed project includes only cultivation activities. No retail activities are proposed or allowed, and the site will not be open to the public. Bullards Crossing is a dead end with minimal existing traffic. Sight lines at the intersection with Rt. 8 are excellent in both directions.

4. The proposed facility will operate with private water and sanitary service. Proposed locations are indicated on the site plan. Site drainage is managed by stormwater controls designed to mitigate runoff through stormwater infiltration. A detailed safety and security plan for the site has been prepared and is described in the summary submitted with this application. The plan will be reviewed with public safety officials before and after construction.

Requirements Specific to Marijuana Establishments

Allowed Locations

The proposed marijuana cultivation facility complies with the location requirements of §15(c) of the Bylaw for zoning district, lot size, and setbacks, as shown on the Site Plan. No schools or daycare centers are located within 150' of the cultivation facility, or the property.

General Requirements

The project is designed to meet the requirements of §15(c) of the Bylaw. Specifically:

1. Outside Storage – All marijuana plants and product will be located within the secure perimeter of the facility, unless being transported to another marijuana establishment in accordance with state regulations.

2. Visibility of Activities – All processing activities (cutting, drying, packaging, etc.) will be located inside the proposed headhouse building. The proposed fence is designed to obscure visibility.
3. Paraphernalia – The proposed facility is not a retail location, and paraphernalia will not be sold or displayed at the site.
4. Hours of Operation –8:00am – 5:00pm Typical; 6:00am – 9:00pm Peak Season
5. On-site Consumption – On-site consumption will be strictly prohibited.
6. Sale of Alcohol – Alcohol will not be sold at the proposed facility.

Filing Requirements

The following documentation has been submitted with this application:

1. Site Plan – Drawing Set Enclosed
2. Security Plan – Enclosed
3. State License – Enclosed

Additional Documentation

- Floor plans and elevations of the proposed head house have been included with the site plan.

Conclusion

We are confident the proposed plan addresses the requirements of the Bylaw and will gladly incorporate additional comments from the Select Board, Planning Board, and Town departments. We look forward to presenting this site plan to the Planning Board at its next meeting.

Sincerely,

Berkshire Design Group

Christopher Chamberland, P.E.
Principal

TAB 3

Corporations Division

Business Entity Summary

ID Number: 001396484 Request certificate New search

Summary for: FFD ENTERPRISES MA, INC.

The exact name of the Domestic Profit Corporation: FFD ENTERPRISES MA, INC.

The name was changed from: IPSWICH PHARMACEUTICAL ASSOCIATES, INC. **on** 09-24-2020

Converted from IPSWICH PHARMACEUTICAL ASSOCIATES, INC. on 08-07-2019

Entity type: Domestic Profit Corporation

Identification Number: 001396484 **Old ID Number:**

Date of Organization in Massachusetts: 08-07-2019

Last date certain:

Current Fiscal Month/Day: 12/31 **Previous Fiscal Month/Day:** 12/31

The location of the Principal Office:

Address: 40 WOODLAND STREET

City or town, State, Zip code, Country: HARTFORD, CT 06105 USA

The name and address of the Registered Agent:

Name: HENRY ZACHS

Address: 116 NEWBURYPORT TURNPIKE

City or town, State, Zip code, Country: ROWLEY, MA 01969 USA

The Officers and Directors of the Corporation:

Title	Individual Name	Address
PRESIDENT	BENJAMIN ZACHS	40 WOODLAND STREET HARTFORD, CT 06105 USA
TREASURER	HENRY ZACHS	40 WOODLAND STREET HARTFORD, CT 06105 USA
SECRETARY	HENRY ZACHS	40 WOODLAND STREET HARTFORD, CT 06105 USA
DIRECTOR	BENJAMIN ZACHS	40 WOODLAND STREET HARTFORD, CT 06105 USA
DIRECTOR	HENRY ZACHS	40 WOODLAND STREET HARTFORD, CT 06105 USA

Business entity stock is publicly traded: ☐

The total number of shares and the par value, if any, of each class of stock which this business entity is authorized to issue:

Class of Stock	Par value per share	Total Authorized		Total issued and outstanding
		No. of shares	Total par value	No. of shares
CNP	$ 0.00	200	$ 0.00	0

☐ **Consent** ☐ **Confidential Data** ☐ **Merger Allowed** ☐ **Manufacturing**

View filings for this business entity:

ALL FILINGS
Administrative Dissolution
Annual Report
Application For Revival
Articles of Amendment
Articles of Chapter Surrender

View filings

Comments or notes associated with this business entity:

New search

TAB 4

Cannabis Control Commission

COMMONWEALTH OF MASSACHUSETTS

RMD-1306 — License Number

08/12/20 — Expiration Date

Pursuant to its authority and power to license Medical Marijuana Treatment Centers granted to it under G.L.c 94I of the Massachusetts General Laws,

The Cannabis Control Commission hereby grants a Final Medical Marijuana Treatment Center License to:

Ipswich Pharmaceutical Associates, Inc

Medical Marijuana Treatment Center permitted to operate at the following address(es):

Dispensing:
116 Newburyport Turnpike
Rowley, MA 01969

Cultivation/Product Manufacturing:
0 Bullards Crossing Road
Hinsdale, MA 01235

Steven J. Hoffman | Chairman

Kay Doyle | Commissioner

Jennifer Flanagan | Commissioner

Britte McBride | Commissioner

Shaleen Title | Commissioner

Shawn Collins | Executive Director

The Medical Marijuana Treatment Center Licensee is subject to M.G.L. 94I, Commission regulations, Commission decisions, and all other legal requirements. The licensee must remain fully compliant with said requirements and legal authorities until such time that it is approved by the Commission to cease operations.

TAB 5

FFD Enterprises MA, Inc.

Security
General Policies and Procedures

Under FFD's security plan, only registered Marijuana Establishment agents, authorized persons, vendors, contractors or visitors, shall have access to the premises. Individuals not engaged in authorized activity will not be granted entry.

All phases of cultivation shall not be visible from a public place without the use of binoculars, aircraft or other optical aids. The cultivation/production area is enclosed by a 6-foot galvanized steel locked perimeter security fence designed to prevent unauthorized entry. The fence will be wrapped with black plastic to hide the plants from view. All locks will be commercial grade. Also, the property is in an extremely isolated area; there are not, any “public places” around the property, because the surrounding land is privately owned.

The facility will have a security alarm system that will be constantly monitored and will provide an alert to certain employees within five minutes after a notification of an alarm or system failure. Additionally, there will be video cameras monitoring all points of entry and exit, parking lot areas as well as the limited access areas. The entry gate, will be secured by a video system, that will have the capability of producing a clear photo, with time and date stamp, and will be locked at all times other than for the entrance of employees or for deliveries/shipments.

All security equipment and locks will be kept in good working order and tested regularly, with only authorized agents having access to the equipment. Keys will not be left in locks or stored in a location accessible to individuals who are not authorized personnel. Spare copies of all keys will be kept in a locked, secure cabinet inside the head house with a key that only the general manager has access to.

Cameras will be angled to allow for the capture of clear and certain identification of any person entering or exiting the facility and will remain operational during a power outage. Cameras will be able to immediately produce a clear, color, still photograph in an industry-standard image format. All recordings will be time stamped. Twenty-four-hour recordings from all cameras will be made available to the CCC and local police and will be retained by FFD for at least ninety calendar days. There will be at least twelve (12) perimeter cameras covering the perimeter fence. Each camera has a 150-foot range. The cameras will be infrared, allowing for clear vision even in the dark. The alarm system wiring will be run along the surface of the fence. It will meet the Commonwealth’s electrical requirements. It will be covered installation from electrical conduit boxes to waterproof outdoor junction boxes; the weather will have no effect on the equipment. All security system equipment and recordings will be maintained in a Limited Access Area (LAA) and will only be accessible to the minimum number of employees essential for efficient operation to protect against loss, theft, destruction or alterations. The security cameras will be wired in conduit, which will protect the wiring from being cut. The security system will be both wireless and wired.

All LAA’s will be identified by a posted 12 x 12" sign with 1-inch lettering. All finished marijuana and marijuana products will be stored in an LAA in a secure, locked safe, which safe will be locked except for when product is being replaced or removed. FFD registered agents will always be required to visibly display an identification badge. Contractors, vendors, and approved visitors, must be logged in

and out, display an ID badge and be escorted by a Marijuana Establishment agent in order to enter an LAA. Visitor ID badges will be returned to Marijuana Establishment upon exit.

Access to surveillance areas will be limited to essential personnel, law enforcement, security system personnel and the CCC. All on-site surveillance rooms will be locked and will not be used for any other function. All security equipment and recordings will be kept in a secure location to prevent theft, loss, destruction and alteration. FFD staff will keep a current list of authorized employees and service personnel with access to surveillance areas that will be available to the CCC. All security equipment shall be maintained in good working order and shall be inspected and tested no more than thirty days from the prior inspection.

On an annual basis, FFD will obtain at its own expense a security system audit by a vendor approved by the CCC. The report generated by such audit must be submitted to the CCC within thirty days of the audit.

FFD will immediately notify appropriate law enforcement authorities and the CCC within 24 hours after discovering the following: (1) discrepancies identified during inventory, diversion, theft, loss, and any criminal action involving FFD or a MTC Agent; (2) Any suspicious act involving the sale, cultivation, distribution, processing or production of marijuana by any person; (3) Unauthorized destruction of marijuana; (4) Any loss or unauthorized alteration of records related to marijuana, registered qualifying patients, personal caregivers or MTC Agents; (e) An alarm activation or other event that requires response by public safety personnel; (5) The failure of any security alarm system due to a loss of electrical power or mechanical malfunction that is expected to last longer than eight hours; and (6) any other breach in security. FFD will, within 10 calendar days, provide written notice to the CCC of any incident described in 935 CMR 501.110(6)(a), by submitting an incident report in the form and manner determined by the CCC which details the circumstances of the event, any corrective actions taken and confirmation that the appropriate law enforcement authorities were notified.

The FFD cultivation site is also equipped with an alternative power source. Immediately upon power loss, the battery back-up for FFD's main power source will kick in. The battery backup will provide instant power to the security system for the few seconds before the main generator automatically begins operations. The facility's generator is a Propane powered 'Generac' brand standby generator with an automatic transfer switch. The complete auxiliary power system is designed to provide instant and lasting power, the Propane tank on site will have enough fuel to run for approximately 75 hours before needing re-fueling. The generator automatically runs a test cycle once per week for five minutes to test the power-loss sensing, transfer switch, and startup systems. An employee will do a visual check of the generator and fuel tank every day to confirm it is in working order (green status light on side of unit). The Propane tank will be refilled once it drops below 50% capacity.

FFD will share its security plan and procedures with the Hinsdale Police Department as well as any material changes thereto.

II. Specific Security Policies and Procedures

Standard Operating Procedure

EVACUATION PLAN

1. Purpose

The Evacuation Standard Operating Procedure provides guidance related to pre-planning, training and evacuation drills. This procedure includes short-term and long-term evacuations, which include transportation plans, offsite-sheltering locations with sheltering guidelines for staff and guests, procedures for moving required materials and supplies, and re-entry guidelines.

2. Scope

The scope of this SOP is for all employees at the facility, and to serve as guidance for aiding staff and guests in evacuating the premises.

3. Prerequisites

The facility will have an evacuation plan in place that will be mandatory training for all new hires, and will also be actively tested annually.

4. Responsibilities

It is the responsibility of the Director of Security and the Facility Manager to review the documentation for the evacuation plan, and to plan, initiate and critique annual evacuation drills.

5. Procedure

In the event there is a need for evacuation, the pre-set plan will be put into action:

- If during operating hours, politely but firmly move guests toward the exits explaining there is a safety issue, and we apologize for the inconvenience, but their safety in this instance is our foremost concern.
- The facility manager or another registered agent(s) present should have already notified 911 that there was a need to evacuate the facility (provide the reason to the dispatcher), and that all staff and guests were being removed as a precaution.
- An announcement should be made, and the evacuation notice should be confirmed between all employees on site.
- Ensure that all staff and guests are out of the facility, and safely gathering at the Bullards Crossing entrance of the facility. If they have already left the area, focus on the ones who have remained behind.
- If safe to do so prior to evacuation, Facility Manager and/or Security should:
    - Secure vault
    - Gather up visitor log and employee roster.
- As soon as practical, facility manager and security should conduct a guest and staff roll call at the reunification location to ensure all occupants were safely evacuated.
- As first responders arrive, carefully explain the situation to them, and answer any questions they may have.
- Notify the first responders if anyone became ill, displayed any symptoms or illness that may have been caused by, or as the result of the evacuation. Also notify them if anyone is missing from roll call.
- When the situation has been declared safe by authorities, the Facility Manager shall conduct a reentry inspection prior to allowing occupants back into the facility
    - Checking for safety concerns
    - Missing inventory
- If safe to resume operations, staff and guests will be allowed back into the facility to resume operations.
- An inventory audit will be conducted by the Facility Manager to ensure that no diversion has taken place.
- In the event of diversion, discrepancy and theft SOP's shall be followed.
- Make all necessary notifications and reports to the C.C.C. according to regulations
- Conduct a post incident review to determine any system shortcomings, and make any necessary changes to minimize future risks
- Report any significant changes to the emergency plan to local Law Enforcement.

6. References

Refer to the actual evacuation plan checklist to ensure all steps have been followed, that product and cash have been secured if possible, and all employees and patients have been moved out of the facility.

7. Reporting

Any implementation of the evacuation plan, or the results of any annual drill must be provided to the Director of Security. The Facility Manager and the Director of Security must review the time it took, any issues that arise, and determine if there are any necessary upgrades required for the plan.

Standard Operating Procedure

BURGLARY

1. Purpose

The purpose of this SOP is to provide registered employees with guidance in the event of a burglary.

2. Scope

The scope of this SOP is educating registered employees in the procedures to follow in the event of a burglary.

3. Prerequisites

All employees will be initially trained on protocols for handling a burglary, and will also be involved in role playing during the training period to understand preserving a crime scene.

4. Responsibilities

The Security Director is ultimately responsible for creating and modifying protocols to insure the proper employee response in the event of a burglary. The Security Director works with the facility manager to help employees practice and train for events such as burglaries.

5. Procedure

Burglary: Burglary is legally defined as the criminal offense of breaking and entering a building illegally for the purpose of committing a crime. Burglaries generally will occur at the facility after operating hours and while there are no registered employees present. Typically burglaries occur during the night and are not discovered until the next day during normal operating hours.

If upon entering the facility a registered employee notices something is afoul and upon investigation a burglary was determined to have occurred in the previous night, then registered employees will:

- Evacuate all employees, and immediately secure the facility.
- Have all employees remain outside the facility until police arrive. This will ensure preservation of evidence and any remaining inventory, as well as ensure the safety of all in case a perpetrator remains on the premises.
- Care should be taken to not damage any physical evidence.
    - Do not touch door knobs, and/or items that have been moved or left behind.
    - Make a note of any items touched prior to the discovery of the burglary.
    - Avoid walking around the interior and the exterior of the property.
- Notify the facility manager and the Security Director and follow their direction.
- Make mental notes of items that appear to be out of place
- Assist law enforcement with their investigation.
- At the direction of the Facility Manager, the remaining inventory will be reconciled with the days end inventory from the prior day. Any and all discrepancies/diversions, as well as stolen or damaged equipment, shall be reported according to SOP's and state regulations.

6. References

The Director of Security and Facility Manager maintains specific forms and inventory reconciliation sheets in the event of a discovered theft.

7. Reporting

All incidents or burglary must be reported to the facility director, the director of security, upper management and the appropriate state authorities in accordance with 935 CMR 500.110(7).

Standard Operating Procedure
ROBBERY

1. Purpose

The purpose of this SOP is to provide registered employees with guidance in the event of a robbery.

2. Scope

The scope of this SOP is educating registered employees in the procedures to follow in the event of a robbery.

3. Prerequisites

All employees will be initially trained on protocols for handling a robbery, and will also be involved in role playing during the training period to understand the physical and psychological outcomes.

4. Responsibilities

The Security Director is ultimately responsible for creating and modifying protocols to insure employee, guest, and asset security in the facility. The Security Director works with the facility manager to help employees practice and train for events such as robberies.

5. Procedure

Robbery

Our enterprise values its employees and our guests first and foremost. Inventory can be replaced, cash can be replaced, but human lives cannot. Remember – there is nothing in the facility whatsoever worth dying for.

- In the event of a robbery, there are four things that you must remember:

- Remain calm
- Remain alert
- Remain observant
- Comply with the robber's demands

- In the event of an armed holdup, comply with all demands in a polite, courteous and efficient manner. Most perpetrators simply want to take the cash, and get out as quickly as possible.
- Follow the perpetrator's instructions and commands completely and without hesitation
- Anyone near the silent alarm should activate it, if possible. There should be no rapid, unexplained movements. If the opportunity arises that the employee is close enough to the alarm to push the panic button with their knee or to do it without being noticed, then do so with extreme caution. If the robbery occurs during opening/closing procedures, and if safe to do so, press the panic code on the alarm key pad to notify police.
- If the police show up while the perpetrator is still on the premises, and asks if someone tripped the alarm, the facility manager should simply say that the cameras are all watched at the police station. Never, ever, give any indication that someone alerted the police.
- Do not look into the robber's eyes, it will only heighten their anxiety about being recognized. Our surveillance system will provide the police with the strongest identification of the perpetrator, so employees do not need to study the individual – it could only lead to tragic consequences.
- If possible, tell the employees that they are to do everything the perpetrator asks.
- Open the cash/product vault if commanded to do so, and then back away. Allow the robber unfettered access to the money/product, so they will take what they want and hopefully leave quickly.
- Avoid confrontation. This is not the time to engage the robber in small talk or to ask why they are doing this. There is no need for any sort of conversation that goes beyond "yes" or "no" unless asked for a specific answer by the perpetrator.
- If the robber demands the inventory, show them where it is in the front room, but do not point out the back room unless they demand to know. Open the storage safe for them, and back away.
- While the robbery is in progress, employees should make note of their physical characteristics – approximate height and weight, any sort of accent, distinguishing features such as scars or tattoos. If the perpetrator had a weapon, was it in their right or left hand? Was it a revolver, or a semi-automatic? Approximately how long was the barrel? Their clothing should also be observed – did they wear anything with a team insignia or brand name? Were they wearing any sort of brand name clothing or shoes?
- Once the perpetrator has left, do not attempt to follow them outside. Try to observe the make and model of the vehicle they left in, or what direction they ran in. If possible, write down the license plate number. Remember, our parking lot is under camera surveillance, and hopefully the film will provide sufficient evidence for the police to find the suspects.

AFTER THE ROBBERY

- The police should be contacted as quickly as possible after the perpetrator has left by any means available. Clearly explain that our facility has suffered a "robbery", and be prepared to share any specific observations that you have made.
- Police will want to know if the suspect was armed, what type of weapon, how many suspects there were, and how and what direction they fled.
- Before the police arrive, obtain the names, addresses and if possible, the registration cards of any witnesses to the crime. Request that they remain in the facility until the police arrive. If they insist on leaving, ask for their contact information, but do not attempt to block their way or in any way prevent them from leaving the premise.
- If anyone has a medical issue, or states that they may be having a heart attack or some other medical episode, immediately dial 911 and urgently request an ambulance for the patient. Follow Medical Emergency SOP.
- Secure the scene to preserve any evidence.
- Lock the doors, keep people away from the areas where the robbers were in and secure but do not touch any and all evidence that may have been left behind by the suspects.
- When the police arrive, answer all of their questions and provide them with any sort of contact information they request.
- Also, ensure that the facility manager has called the COO, and the Security Director, and that they are aware of what has occurred.

o Enlist the aid of outside resources to assist staff members with any post-traumatic stress they may experience. Conduct a post incident debrief to determine any system shortcomings, and make any necessary changes to minimize future risks. Any significant changes to the emergency plan need to be reported to local Law Enforcement.

7. Reporting

All robbery attempts or events must be documented and reported to the director of Security, upper management, and to the appropriate state authorities.

Standard Operating Procedure

FIRE

1. Purpose

The purpose of this SOP is to provide guidance to facility employees in the event of a fire.

2. Scope

The scope of this SOP is dealing with a fire emergency in the facility.

3. Prerequisites

All employees will be extensively trained, and validation techniques will be utilized for ensuring continued competency. Semi annual safety, best practices and continued education material will be required for all employees and management.

4. Responsibilities

It is the responsibility of the facility manager to review fire procedures/drills, and to work with the Director of security to provide beginning and recurrent training for all employees in fire prevention/containment.

5. Procedure

FIRE:

The facility has developed the following fire emergency plan and it shall be taught to all employees, and implemented in the event of a fire on the premises. In the event of noticing smoke or a fire:

- Break open the fire alarm and announce that the building needs to be evacuated.
- The Facility manager, if safe to do so, should move through all of the rooms in the facility, and ensure that everyone has made it out safely, to include any quests.
- In the event the fire is small and containable, there are portable fire extinguishers throughout the building. Use with extreme caution, and if in an electrical juncture box, move away and ensure the facility is empty.

- Make sure the entrance to the facility is unobstructed for the fire department vehicles. Ask if anyone is parked in front of the facility to please move their vehicles immediately so the fire department can get through.
- When firemen arrive, detail where you think the fire started, and where it is the heaviest.
- Immediately inform the executive director of the fire and the current situation.

Remember the acronym <u>RACER.</u>

R – rescue people from the immediate area. Move people away from smoke and fire, and yell to ensure the facility is empty.

A - activate the nearest alarm, and contact 911 with the address of the facility. Provide your name, the location, where the fire might be coming from, and stay on the line while they respond.

C – Contain the fire by closing all windows or doors if possible.

E – Extinguish the fire with an appropriate fire extinguisher for the type of fire being fought (i.e., electrical, chemical, etc.) Only do so if it does not involve any risk of life.

R – Relocate to a safe area. Make sure the dispensary is cleared, and move people away from the entrance and any windows.

RECOVERY

- Once the situation is stabilized and the area is safe to go back into, damage must be assessed
- Inventory must be moved
- The entire area should be blocked off except for access to first responders and management.
- Designated employees will begin the effort to restore the area if possible, and if not, to ensure that all employees are warned not to go past any blockades set by the fire department.
- Management will contact the necessary insurance personnel to begin the recovery effort.

6. References

Refer to chemical fire extinguisher instructions for a determination of the proper material for battling a chemical, electrical, or other fire source.

7. Reporting

Any fire, whether minor or a full-on blaze requiring the fire department must be recorded in the facility incident log, and reported to upper management, and local authorities immediately in accordance with 935 CMR 500.110(7).

Standard Operating Procedure

Active Shooter

1. Purpose

The purpose of this SOP is to provide registered employees with guidance in the event of an Active Shooter.

2. Scope

The scope of this SOP is educating registered employees in the procedures to follow in the event of an Active Shooter event.

3. Prerequisites

All employees will be initially trained on protocols for handling an Active Shooter event, and will also be involved in role playing during the training period to understand the physical and psychological outcomes.

4. Responsibilities

The Director of Security is ultimately responsible for creating and modifying protocols to insure employee, guest, and asset security in the facility. The Director of Security works with the Facility Manager to help employees practice and train for events such as Active Shooter events.

5. Procedure

Active Shooter: An active shooter incident is defined by U.S. government agencies as "an individual actively engaged in killing or attempting to kill people in a confined and populated area." Although, it can be committed by more than one perpetrator, and in less confined spaces. An Active Shooter incident does not always involve the use of a firearm.

Staff Action: Upon the detection of an Active Shooter, if it is safe to do so, staff should alert others of the present danger. This can be done in person, page, or any other means. Staff should be as specific as possible as to the location and number of suspects, the type of weapons, and the suspect's actions. If readily accessible, and if it doesn't cause undue delay, staff should press the panic alarm.

In the event of an Active Shooter, FFD employees and guests have a variety of options available to them, with the ultimate goal being the preservation of life. These options include Evacuation, Lock-down, and Confront. Safe evacuation is always the preferred response, but the situation will dictate whether this is a viable option.

- Evacuation
    - Factors to consider when determining the viability of evacuation
        - Location of intruder
        - The type of weapon being used by intruder
        - Mobility; of both you and those in your charge
        - Distance and/or concealability between you and the threat
    - Evacuate to the reunification location
        - Bullards Crossing entrance to facility
    - It is NOT recommended to pull the fire alarm to initiate an evacuation.
        - This may inadvertently cause other staff or guests to evacuate past the threat.
- Lockdown
    - Lockdown may be a permanent solution, or a semi-permanent solution while you evaluate other options
    - Assist those with access and functional needs
    - Close and lock all windows and doors
    - Close blinds and/or obscure windows with paper
    - Turn off the lights
    - Turn off the ringer and vibrator option on your cell phones
    - If it can be done without giving away your position, call 911
    - Barricade the door using anything available
    - Prepare for your next plan of action
        - Evacuation or confronting the intruder
- Confront
    - Arm yourself with items from your location, chair; fire extinguisher; pen; letter opener; etc.
    - Situate yourselves angled away from the door.
    - Overwhelm the intruder upon entry, taking any steps necessary to preserve life

- If you are able to disarm the intruder, secure the weapon in a trash can or some other container so it is out of sight if you are met by Law Enforcement

Management and Security Actions Post Incident:

- Cooperate and assist Law Enforcement with their investigation.
- Secure inventory as soon as it is safe to do so.
- Complete an inventory audit to determine to what extent, if any, there was a diversion of product.
- Make all necessary notifications and reports to the C.C.C. according to regulations
- Enlist the aid of outside resources to assist staff members with any post-traumatic stress they may experience
- Conduct a post incident debrief to determine any system shortcomings, and make any necessary changes to minimize future risks
- Any significant changes to the emergency plan need to be reported to local Law Enforcement.

6. References

Refer to training materials for Active Shooter from the corporate trainer and the security director.

7. Reporting

All Active Shooter events must be documented and reported to the all agencies according to 935 CMR 500.110(7)

Standard Operating Procedure
FACILITY SECURITY

1. Purpose

The purpose of this SOP is to provide guidance to employees on the overall security protocols at the facility and the responsibility of employees working there.

2. Scope

The scope of this SOP is for anyone working in the facility or for the company. Security is a paramount concern for our employees, our staff, and the public.

3. Prerequisites

All employees working in the facility are required to have gone through initial training and mentoring that specifically includes all aspects of security for the facility, including transportation vehicles.

4. Responsibilities

The facility's security is the direct responsibility of the Director of Security, who has a staff of security agents, but every employee is trained in specific aspects of the facility's security.

5. Procedure

Facility Security

The facility security is designed to deter security breaches from the outside in. The facility will feature overlapping physical security measures and procedures that control access to cultivating and processing areas, enhance security at vulnerable times and locations, and enable rapid response in the event of an incident. The Complex site plan shows the entire complex of processing and cultivating buildings, including the nearby streets, parking lot, and any other entities that physically border the site. Cannabis and associated products will not be visible from any public property or property controlled by the cultivation center.

Perimeter Security

This section describes the measures designed to prevent unauthorized access to the complex.

1. Entrance and exit protocols

Entrance and exit protocols are designed to restrict entrance only to those with sufficient reason to be on the premises, and to ensure that at all times security is aware of all people on the premises and the areas they are authorized to be present in. No unscheduled guests will be allowed in the premises. Upon seeking entrance, approved individuals will allowed access through the main security gate, and they shall submit their identification to the security agent who will categorize them into one of four types:

1. Authorized personnel, including agents of the cultivation facilities,
    a. Must show registered agent identification
2. Guest, such as third-party vendors or potential clients.
    a. Must show: Government-issued ID.
    b. Must be present on an appointment or delivery list.

c. Must at all times on-site be accompanied by the manager on duty.

3. Official guests, including regulatory officials, law enforcement, or other persons as determined by the General Site Manager.
   a. Must show: Government-issued ID.
   b. Must show: Appropriate documentation for an unscheduled inspection or must be present on an appointment list.
   c. Must at all times on-site be accompanied by the manager on duty.
4. Unauthorized persons, such as former employees, former tenants, or prospective visitors without valid appointment documentation.
   a. Must show: Government-issued ID for verification procedures.
   b. Management and the Director of Security will be notified, as appropriate.
   c. Will not be permitted onto the premises.
   d. Will be compared with a list of persons banned from the premises.

Identification must contain a picture, date of birth, be currently valid and not have expired. If the security agent suspects ID fraud, they will deny the prospective visitor access, and will notify the authorities.

All guests will sign the guest log, and will be escorted (within line of sight) at all times. Prior to letting these individuals onto the premises, the security agent will contact the authorized personnel who will be responsible for their conduct. Authorized personnel may escort a maximum of five visitors or official visitors.

All unauthorized persons attempting to enter the premises will be recorded and reported to the Director of Security. All unauthorized persons who have previously been banned from the premises shall be documented, including as much information as possible, including photograph, name, and reason for ban. If any such person seeks to enter the premises the security agent will immediately report the attempt to site management and the Director of Security.

Each person permitted to enter the complex will display a color-coded badge at all times. They shall appear above the waist on the front part of the person's body. This will ensure that any unescorted visitors are easily identified.

Prior to exit, all persons shall check in with the security agent and present the same identification as required for entrance.

All entrants or attempted entrants, including copies of ID, time of arrival or departure, and vehicle make, model and license plate number will be logged by the security agent.

2. Visitor protocols

Summary of visitor protocols:
• All vendors, contractors, state or local government representatives, and all others without permanent agent registrations for our facility, are considered guest.
• Before being permitted to enter the premises, all guests shall provide a government identification showing proof of age and ID, already be included on an expected list of guests or show official documentation of an unscheduled inspection or authority to perform such inspection, and sign the guest

log on camera. The security agent will verify that the name on the identification matches the name in the guest log. Identification must contain a picture, date of birth, valid and not expired.
• All guests shall be escorted at all times.
• Escorting means within reasonable line of sight.
• A single employee may escort no more than five visitors.
• The escorting employee shall log all access by visitors to Limited Access Areas at the time of the access.

3. *Interior Security*

This section describes the measures designed to prevent unauthorized access within the complex, to monitor personnel and valuables on the grounds, and to respond to situations or alarms.

Access controls and locks
Certain rooms within the building will be secured with electronic locks that log the entry times of all accesses and access attempts. The Director of Security and the manager has the authority to allow or disallow employee and cultivation agents access to any of these locks, and will maintain records detailing all allowances. The Director of Security will investigate all attempts at access to areas where employees are not authorized. The Director of Security will work with security vendors to test and maintain the electric locks regularly, to ensure the site remains secure. Using access control door locks allows the Director of Security to limit access with minimal interference with individual agent movement or operations.

Building construction and materials
All buildings on the property will be constructed of materials that resist unlawful entry and protect from outside intrusion. The integrity of structures will be maintained by periodic inspection and repair.

Security agents
Area monitoring and loitering response is their core function. There will be a security agent on site at all times. As part of their patrol pattern, these agents will be trained to monitor the area surrounding the facility. Loiterers will be warned, with warnings recorded in the facility incident log, and will be reported to law enforcement as warranted.

Limited Access Areas
The Director of Security may designate areas of the premises as Limited Access Areas (LAA). Typically, an LAA will be an area of the premises containing cannabis plants or product, business records, security or surveillance equipment, or cash. However, the Director of Security may designate additional areas as LAA at his or her discretion. All LAAs are considered heightened security areas. The Director of Security will specifically review access authorization to these areas, at least on a monthly basis, and will strive to limit access authorization only to personnel who require that access. No visitors will be permitted into an LAA without advance documentation and authorization. Official visitors present for purposes of inspection, will be permitted as required, but shall be accompanied by the Director of Security or another senior employee. All access to LAAs will be recorded through the lock's electronic log and by video surveillance. The Director of Security will review these records at least monthly. All LAAs will be clearly identified as defined in 935 CMR 500.110 (4)

Building opening and closing protocols
The Director of Security and Director of Cultivation will designate supervisor-level staff. These supervisors will receive special authority to enable them to lock and unlock their respective buildings or access areas. In order to open any building or other Limited Access Area from a secured situation, one of these supervisors must enter his unique entrance code. The supervisors will have a checklist to walk through upon entry, verifying that surveillance cameras in all rooms are operating correctly and that there are no suspicious signs in the facility. This checklist should take 5-10 minutes to complete. Both will confirm in a written log that the facility status is normal before admitting additional personnel to the facility. The last person to leave the Limited Access Area buildings and the property must be a supervisor. The supervisor must enter a special command and/or code, in order to secure the facility. A supervisor must follow this exit protocol to secure the facility each time the Limit Access Area building is left unattended. Security will always monitor personnel leaving the main Central Processing Center or Cannabis Cultivation Complex property.

Product Security
All areas where cannabis clones, culture, plants, or products are stored, processed, manufactured, shipped or received shall be defined as LAA. These areas will include climate-controlled vaults for finished products, climate-controlled storage containers for intake, and separate climate-controlled storage containers for products that have passed testing.

Record Security
All areas where business records, including employee files and surveillance footage, are stored shall be defined as LAA. Records shall be stored as digital files on access-limited computers. Documents will also be printed and stored in locked filing cabinets within areas defined as LAA. Records stored include 90 days on cloud storage of surveillance footage and business and incident records dating back seven years. The Director of Security will periodically verify the integrity of the records, and review the logs to ensure there has been no unauthorized access. In the event of a records security breach, the Director of Security will work with the executive staff to review all record keeping and security policies to identify deficiencies, corrective measures, and to rectify any compromised information. The Director of Security will also report such incidents to law enforcement if appropriate.

1. ***Technical Security System***

a. The technical security systems provided will be scalable and capable of being expanded to handle the on-going evolution of the facility and security requirements as well as building modifications at a later date.

b. The security monitoring and control systems will be modern, state-of-the-art systems that are IP-centric and fully networked.

c. Within the building, conduit will be used for all security systems cabling. All security system cabling will be low voltage cabling only. Conduit is being provided to accomplish an enhanced degree of protection for the security equipment.

d. The security system will utilize the common IT backbone infrastructure for all the security system communications.

e. The security systems throughout the building will be provided with uninterruptible power for a minimum of 240 minutes of run-time.

f. The security system will have a failure notification system in place, which will send a notification to the facility manager, and/or the security director within five (5) minutes of the failure.

g. Lockable vertical equipment racks will be used for housing all equipment for the security systems. The wall mounted security equipment including field panels, power supplies, transformers, converters, will be located in IT closet/room which is card reader controlled. Video surveillance storage servers will be located in the lockable rack enclosure. Surveillance equipment will be accessed by authorized personnel only. A list of authorized personnel having access to surveillance equipment will be maintained.

h. Any lock combinations, passwords, entry codes will be secured properly and will not be accessible to any unauthorized personnel.

i. The access control and alarm monitoring system and the digital video system will be provided with a single platform interface. Hardware and head-end equipment for these systems will be separate, however, the single platform interface will provide for seamless integration.

j. A visitor management system will be implemented. The purpose of the visitor management system is to document and record a log of all visitors to the site. The visitor management system will be configured such that confirmed visitors will be issued visitor badge. At the end of each visit, the visitor will return the badge to security.

k. The access control and alarm monitoring system, and the digital video system, will interface and/or communicate on the IT network.

l. Security personnel will have a digital radio communication system, with a unique channel, that is used throughout the facility for coordinating security and business operation needs.

m. All "actions or clicks / manipulation" conducted within security software (access control and video) will be recorded for auditing purposes.

6. References

The facility director, and the director of security, maintain detailed security plans and schematics, and are available at any time to answer any specific security questions.

7. Reporting

Any incident involving a security matter must be logged and reported to the facility director and the director of security. Law enforcement and the Commission shall be notified according to 35 CMR 500.110(7)

Standard Operating Procedure
ALARM SYSTEM

1. Purpose

The purpose of this SOP is to provide guidance on the alarm system(s) installed in the facility and their operation.

2. Scope

The scope of this SOP is for all employees working in the facility. It is provided to give an overview for all employees, regardless of their position, to understand the alarm system in the facility.

3. Prerequisites

All employees go through training for the alarm system courses during initial training. Additionally, there is recurring training on safety protocols for the facility. All managers are taught both how to arm and disarm the alarm system.

4. Responsibilities

It is the responsibility of the Director of Security and the Facility Manager to develop, document and teach managers how to manage the alarm system

5. Procedure

Our Hinsdale facility is a multi-use cultivation facility, operating outdoors and indoors. As such, our alarm system will follow the guidelines of both subsections (5) and (6) of 935 CMR 500.110. which read as follows:

(5) Security and Alarm Requirements for Marijuana Establishments Operating Enclosed Areas.
(a) A Marijuana Establishment located, in whole or in part, in a building, greenhouse or other enclosed area shall have an adequate security system to prevent and detect diversion, theft or loss of marijuana or unauthorized intrusion, utilizing commercial grade equipment which shall, at a minimum, include:

1. A perimeter alarm on all building entry and exit points and perimeter windows, if any;
2. A failure notification system that provides an audible, text or visual notification of any failure in the surveillance system. The failure notification system shall provide an alert to designated employees of the Marijuana Establishment (Facility Manager, Director of Security) within five minutes after the failure, either by telephone, email or text message;
3. A duress alarm, panic alarm or hold-up alarm connected to local public safety or law enforcement authorities;
4. Video cameras in all areas that may contain marijuana, at all points of entry and exit and in any parking lot which shall be appropriate for the normal lighting conditions of the area under surveillance. The cameras shall be directed at all safes, vaults, sales areas and areas where marijuana is cultivated, harvested, processed, prepared, stored, handled or dispensed. Cameras shall be angled so as to allow for the capture of clear and certain identification of any person entering or exiting the Marijuana Establishment or area;
5. 24-hour recordings from all video cameras that are available immediate viewing by the Commission upon request and that are retained for at least 90 calendar days. Recordings shall not be destroyed or altered, and shall be retained as long as necessary if the Marijuana Establishment is aware of a pending criminal, civil or administrative investigation or legal proceeding for which the recording may contain relevant information;
6. The ability to immediately produce a clear, color still phone whether live or recorded;

7. A date and time stamp embedded in all recordings, which shall be synchronized and set correctly at all times and shall not significantly obscure the picture; 935 CMR: CANNABIS CONTROL COMMISSION 500.110: continued

8. The ability to remain operational during a power outage; and

9. A video recording that allows for the exporting of still images in an industry standard image format, including .jpg, .bmp and .gif. Exported video shall have the ability to be archived in a proprietary format that ensures authentication of the video and guarantees that no alternation of the recorded image has taken place. Exported video shall also have the ability to be saved in an industry standard file format that may be played on a standard computer operating system. All recordings shall be erased or destroyed prior to disposal.

(b) All security system equipment and recordings shall be maintained in a secure location so as to prevent theft, loss, destruction and alterations.

(c) In addition to the requirements listed in 935 CMR 500.110(5)(a) and (b), the Marijuana Establishment shall have a back-up alarm system, with all the capabilities of the primary system, provided by a company supplying commercial grade equipment, which shall not be the same company supplying the primary security system, or shall demonstrate to the Commission's satisfaction alternate safeguards to ensure continuous operation of a security system.

(d) Access to surveillance areas shall be limited to persons that are essential to surveillance operations, law enforcement authorities, security system service personnel and the Commission. A current list of authorized employees and service personnel that have access to the surveillance room must be available to the Commission upon request. If the surveillance room is on-site of the Marijuana Establishment it shall remain locked and shall not be used for any other function.

(e) All security equipment shall be in good working order and shall be inspected and tested at regular intervals, not to exceed 30 calendar days from the previous inspection and test.

(f) Trees, bushes and other foliage outside of the Marijuana Establishment shall be maintained so as to prevent a person or persons from concealing themselves from sight.

(6) Security and Alarm Requirements for Marijuana Establishments Operating an Open Cultivation Facility.

(a) A Marijuana Establishment that is an open cultivation facility shall implement adequate security measures to ensure that outdoor areas are not readily accessible to unauthorized individuals and to prevent and detect diversion, theft or loss of marijuana which shall, at a minimum, include:

1. A perimeter security fence designed to prevent unauthorized entry to the cultivation facility with signs notifying observers that it is a limited access area;

2. Commercial-grade, nonresidential locks;

3. A security alarm system that shall: a. be continuously monitored, whether electronically, by a monitoring company or other means determined to be adequate by the Commission; and b. provide an alert to designated employees of the Marijuana Establishment (Facility Manager/Director of Security) within five minutes after a notification of an alarm or a system failure, either by telephone, email or text message;

4. Video cameras at all points of entry and exit and in any parking lot which shall be appropriate for the normal lighting conditions of the area under surveillance. Cameras shall be angled so as to allow for the capture of clear and certain identification of any person entering or exiting the Marijuana Establishment or area;

5. 24-hour recordings from all video cameras that are available immediate viewing by the Commission upon request and that are retained for at least 90 calendar days. Recordings shall not be destroyed or altered, and shall be retained as long as necessary if the Marijuana Establishment is aware of a pending criminal, civil or administrative investigation or legal proceeding for which the recording may contain relevant information;

6. The ability to immediately produce a clear, color still phone whether live or recorded;

7. A date and time stamp embedded in all recordings, which shall be synchronized and set correctly at all times and shall not significantly obscure the picture;

8. The ability to remain operational during a power outage; 935 CMR: CANNABIS CONTROL COMMISSION 500.110: continued

9. A video recording that allows for the exporting of still images in an industry standard image format, including .jpg, .bmp and .gif. Exported video shall have the ability to be archived in a proprietary format that ensures authentication of the video and guarantees that no alternation of the recorded image has taken place. Exported video shall also have the ability to be saved in an industry standard file format that may be played on a standard computer operating system. All recordings shall be erased or destroyed prior to disposal.

(b) All security system equipment and recordings shall be maintained in a secure location so as to prevent theft, loss, destruction and alterations.

(c) Access to surveillance areas shall be limited to persons that are essential to surveillance operations, law enforcement authorities, security system service personnel and the Commission. A current list of authorized employees and service personnel that have access to the surveillance room must be available to the Commission upon request. If the surveillance room is on-site of the Marijuana Establishment it shall remain locked and shall not be used for any other function.

(d) All security equipment shall be in good working order and shall be inspected and tested at regular intervals, not to exceed 30 calendar days from the previous inspection and test.

(e) Security plans and procedures shared with law enforcement authorities pursuant to 935 CMR 500.110(1)(o) shall include: 1. a description of the location and operation of the security system, including the location of the central control on the premises; 2. a schematic of security zones; 3. the name of the security alarm company and monitoring company, if any; 4. a floor plan or layout of the facility in a manner and scope as required by the municipality.

Alarm Systems, including passive alarms and buttons staff can activate on an independent channel if necessary.

The facility's alarm system is used to detect unauthorized entry and allow notification of law enforcement in an emergency. The alarm system shall be: (A) Electronic with a backup power source for a minimum of four hours;

(B) Connected to a security response organization or to law enforcement;

(C)Activated twenty-four hours a day every day; and

(D) Professionally installed, and monitored.

Each location operated by the company will feature an alarm system, professionally installed and monitored, which will detect unauthorized entry and send notification to law enforcement in the event of an emergency. The alarm system will be electronic and equipped with a backup power source that will provide power for a minimum of four (4) hours. The backup power supply will be provided by battery storage. The system will be connected to a professional alarm monitoring company and will be activated twenty-four hours a day, seven (7) days a week. The professional monitoring companies will respond to alarm activity and notify the facility's management, and law enforcement as necessary.

6. References

The facility director maintains a list of all alarm codes, schematics for all parts of the alarm system's placement, contact numbers for law enforcement, and also maintains a small inventory of parts such as fuses and power supplies for the system.

7. Reporting

All incidences of the alarm being set off, maintenance of the alarm, or any other alarm related issue must be reported to the director of security, to the facility director, and when required by regulation the CCC.

Standard Operating Procedure
Drug Free Workplace

1. Purpose

The purpose of this SOP is to provide guidance for the implementation of a Policy for a Drug Free Workplace.

2. Scope

The scope of this SOP is for anyone working in the facility or for the company. A policy for a drug free workplace is a paramount concern for our employees, our staff, and the public.

3. Prerequisites

The prerequisite for this SOP is approval by upper management of the job responsibilities of each employee.

4. Responsibilities

The Marijuana Establishment subscribes to and endorses an alcohol and drug policy

founded on the principle of freedom with responsibility. The goal of the Marijuana

Establishment is to balance our respect for individual privacy with our need to keep a safe,

productive, drug-free environment. To promote this goal, employees are required to report

to work in appropriate mental and physical condition to meet standards of performance

and conduct.

While on the Marijuana Establishment's premises, either on or off duty, and while

conducting business-related activities off the Marijuana Establishment's premises, no employee may consume, manufacture, possess, distribute, dispense or transfer illegal drugs. "Illegal drugs" is considered to be any controlled substances under federal law which are not being used under the supervision of a licensed health care professional or otherwise in accordance with federal law.

5. Procedure

The legal use of prescription drugs is permitted on the job only if it does not impair an employee's ability to perform the essential functions of the job effectively and in a safe manner that does not endanger any individuals in the workplace. Employees should notify the Facility Manager if the use of properly prescribed drugs might affect the employee's work performance. If there is reasonable suspicion of intoxication, the General Manager may act in the best interest of the Marijuana Establishment and can lead to probation or termination.

6. References

Please refer to the human resources Employee Guidelines manual for the policy for a drug free workplace.

7. Reporting

Any incident involving a violation of must be logged and reported to the facility director and the director of security. Law enforcement and the Commission shall be notified according to 35 CMR 500.110(7)

TAB 6

Berkshire Design Group

December 3, 2020

Hinsdale Select Board
39 South Street
Hinsdale, MA 01235

RE: Traffic Evaluation
Ipswich Pharmaceuticals
Bullards Crossing

Dear Board Members:

Berkshire Design Group has assessed the traffic impacts of the proposed development of the property on Bullards Crossing, in order to estimate the change in traffic that would be caused by the proposed project.

Existing Condition

The existing site is undeveloped and consists of a former gravel pit. There is no traffic generated by the existing condition.

Proposed Condition

The proposed site will include a cannabis cultivation facility, which includes the construction of a processing building and greenhouses.

The ITE Trip Generation Manual does not include entries for cannabis facilities, or any specific agricultural use. The ITE land use code most closely matching container plant production is Code 110 "General Light Industrial", which is described as:

> *[…] free-standing facilities devoted to a single use. The facilities have an emphasis on activities other than manufacturing and typically have minimal office space.*

The ITE Trip Generation Manual provides trip generation rates based on trips per employee. Throughout most of the year, the applicant estimates a total maximum workforce of 20 people to be on site, 5 days per week, with smaller crews on weekends. For a short period, during an 8-week harvest period, the site population will expand to 50-60 people, 7 days per week. The ITE Manual trip generation rate per weekday employee in the category of General Light Industrial is 3.04. In our opinion, this trip generation rate is likely to be applicable to the year-round staff; however, seasonal agricultural workers employed during the harvest period typically arrive as groups in a single vehicle. In our experience working with other agricultural operations, the ratio of personal vehicles to workers is often as high as 4:1. We conservatively estimate that the trip generation associated with the seasonal workers may be reduced by half.

Proposed frequency of other vehicles is estimated to be 4-6 trips per weekday of light-duty vehicles (small supplies, mail/package delivery, etc.) and 6-10 trips per month of heavy-duty vehicles (propane, raw materials, etc.). During harvest time, truck traffic will increase; however, the cannabis end product is light weight and is typically shipped in small "sprinter" vans or box trucks, which would require 2 trips per weekday, representing 1 pickup of finished product.

The estimated trip generation from the proposed site is summarized below. **A trip equals one arrival or one departure**.

Year-Round

Vehicle Type	Frequency	Trip Generation Rate	Total Units	Total Trips Per Day
Employees	Daily	3	20	60
Light Truck (Box truck/ Van)	Daily	6	1	6
Heavy Truck (Tractor-Trailer)	Daily	.5	1	0.5
			TOTALS	**66.5**

Harvest Time

Vehicle Type	Frequency	Trip Generation Rate	Total Units	Total Trips Per Day
Employees	Daily	3	20	60
Harvest Workers	Daily	1.5	40	60
Light Truck (Box truck/ Van)	Daily	7	1	7
Heavy Truck (Tractor-Trailer)	Daily	.5	1	0.5
			TOTALS	**127.5**

Peak Hour Conditions

During the peak hour of the facility, the ITE manual estimates a traffic generation rate of 0.68 trips per employee. Again, trip generation for seasonal workers is estimated at half the rate of full-time employees. Based on the Harvest Time occupancy of the facility, this generation rate results in an estimated 27 new trips in the peak hour (20 Employees x 0.68 trips/employee + 0.5 x 40 Harvest Workers x 0.68 trips/employee).

Conclusion

Based on the discussion above, it is our opinion that the proposed development on Bullards Crossing Road will result in an increase in traffic on Bullards Crossing Road of 27 trips during the seasonal peak hour of the facility. This is the equivalent of one additional trip every 2 minutes on Bullards Crossing Road.

In our opinion, this incremental increase in traffic volume will not have an impact on the current function of Bullards Crossing or the intersection with Rt. 8.

Sincerely,

Berkshire Design Group

Christopher Chamberland, P.E.
Principal

TAB 7

Berkshire Design Group

January 4, 2021

RE: FFD Enterprises MA, Inc.
Bullards Crossing, Hinsdale, MA
Stormwater Management Plan

FFD Enterprises MA proposes to construct a cannabis cultivation facility at property on Bullards Crossing in Hinsdale. The proposed site plan includes an approximately 11,000 square foot headhouse building, 4 greenhouses totaling approximately 11,000, as well as new/upgraded gravel access driveways and a gravel parking lot on an existing, undeveloped site on a former gravel pit.

A stormwater management system, designed to attenuate peak runoff rates, protect water quality, and support groundwater recharge has been proposed, as described in this letter report.

Introduction

The site is a 20-acre parcel that was recently divided from a larger property encompassing a former gravel excavation operation. The site is located south of Bullards Crossing and east of Cady Brook. When the gravel pit was closed, the property was re-seeded and nearly all of the site is covered in scrub meadow grasses, except for gravel access roads crossing the parcel.

The proposed work includes the construction of a headhouse and four greenhouses in the center of the site. A gravel parking lot will be built north of the building and gravel driveways for accessing the building will be constructed on the east and south sides. A large irrigation pond is proposed near the southwest corner of the proposed headhouse and will capture and store runoff from building/greenhouse roofs to be used for crop irrigation. Overflow from the pond is discharged via a 10” outlet pipe.

Parking lot runoff will discharge via sheet flow toward the west of the site.

Soil Conditions

The entire site is underlain by well-draining sands and gravels. All site soils are characterized as Hydrologic Soil Group (HSG) A.

The NRCS soil survey for the site shows a majority of the site, including the entire developed area, consisting of (242) Hinckley loamy sand and (298) Groton and Hinckley soils. These soils are characterized by upper strata of loamy sand and gravel, underlain by coarse sands and gravels with deep groundwater.

Existing Hydrology

An existing drainage area map is shown on sheet D-1.

The study area consists of the entire 20-acre property. This land area is analyzed as a single drainage area in the existing condition, draining to the existing stream to the west of the site.

Proposed Hydrology

The proposed drainage areas are shown on Sheet D-2.

One additional drainage area is included in the analysis of the proposed condition, representing the watershed draining to the proposed irrigation pond. Runoff from the roof areas and surrounding ground surface (Drainage Area P-2) is captured by the irrigation pond for re-use as irrigation water on cannabis fields. Drainage patterns for the remaining site are unchanged in the proposed condition.

Peak Flow Rate

The existing and proposed site plans were analyzed by the HydroCAD Stormwater Modeling System version 10.0 using the Soil Conservation Service TR-20 methodology. The drainage areas shown on Sheets D-1 and D-2 were used to identify the watershed areas and runoff curve numbers. Curve numbers were selected based on the existing or proposed groundcover.

Calculations were performed for the 2-, 10-, and 100-year frequency storms under existing and proposed conditions. Design storms are based on "Atlas 14" rainfall intensity published by the NRCS. Results are calculated at the same control point in the existing and proposed condition for comparison. The results of the calculations are presented in Table 1 below. The full model output is attached.

Table 1. Runoff Flow Rate Summary Table

Condition & Point of Analysis	2-Year Storm 2.94"	10-Year Storm 4.38"	100-Year Storm 7.78"
	Peak Flow Rate (cfs)	Peak Flow Rate (cfs)	Peak Flow Rate (cfs)
Existing Runoff (ECP)	0.39	6.24	43.73
Proposed Runoff (PCP)	0.37	5.93	41.85

As shown by the results in Table 1, the proposed stormwater management system results in peak runoff rates that are less than the existing condition.

Maintenance

Proper maintenance of stormwater management features is important for the system to continue providing mitigation. Components of the system shall be maintained according to the following procedures.

Irrigation Pond

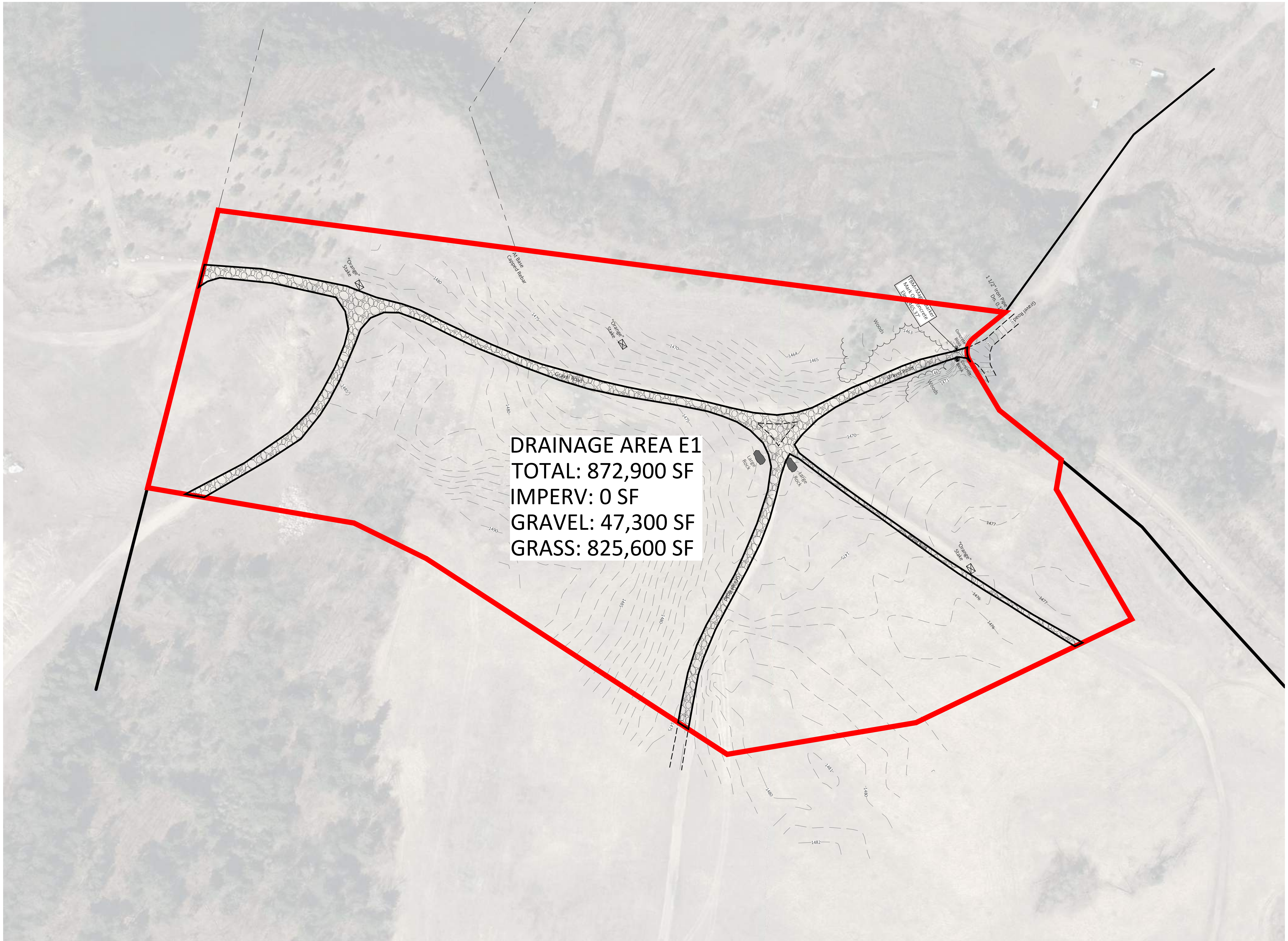
The irrigation pond shall be drawn down and inspected at least once per year. The inspection shall note the health of vegetation and sediment accumulation. Bare spots or erosion shall be repaired and re-seeded. The overflow structure shall be inspected for debris restricting the flow of water and cleaned as necessary. Any sediment buildup shall be removed, and the basin returned to its original bottom grade.

Mowing will be done twice per year, or on the same schedule as other grass areas.

Sincerely,

Berkshire Design Group

Christopher Chamberland, P.E.
Principal



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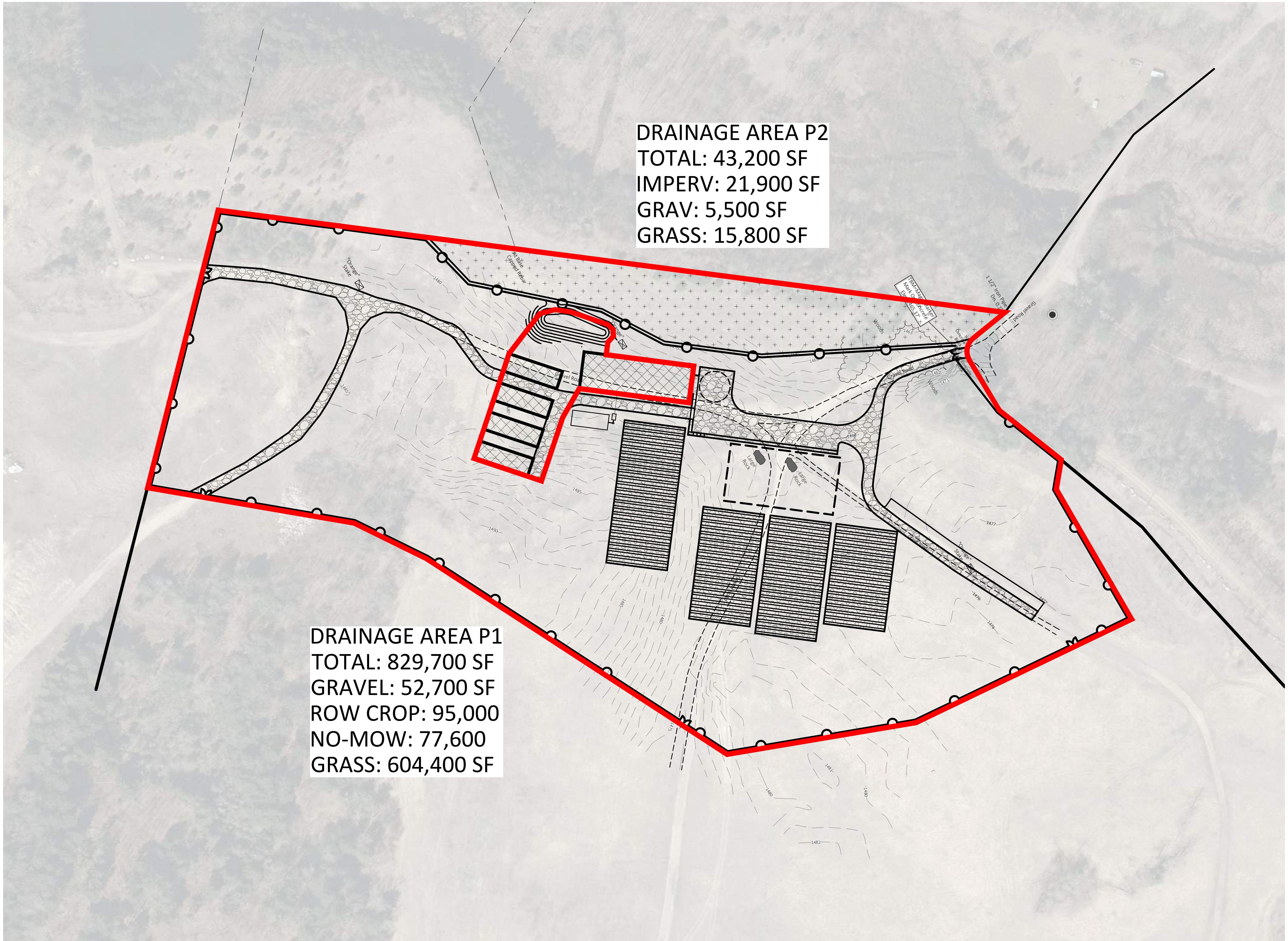
BULLARDS CROSSING
HINSDALE, MASSACHUSETTS

EXISTING DRAINAGE AREAS

Revisions

Date: JANUARY 4, 2021	Sheet Number
Scale: 1"=150'	D-1
Drawn By: CC	
Checked By: LC	



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HINSDALE, MASSACHUSETTS

PROPOSED DRAINAGE AREAS

Revisions

Date: JANUARY 4, 2021
Scale: 1"=150'
Drawn By: CC
Checked By: LC
Sheet Number: D-2

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United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Berkshire County, Massachusetts

Bullards Crossing

November 30, 2020

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

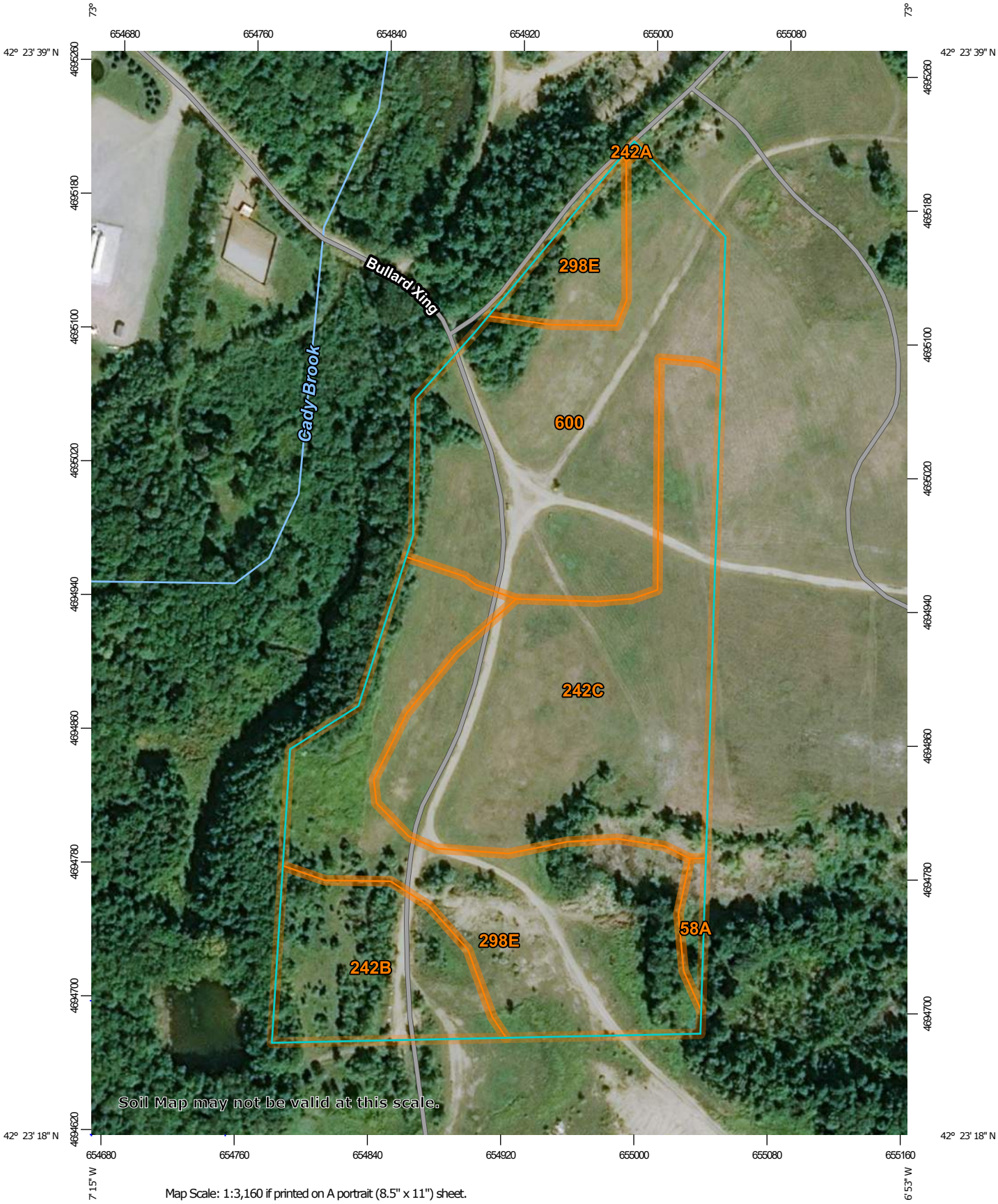
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map



Map Scale: 1:3,160 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 18N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:25,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Berkshire County, Massachusetts
Survey Area Data: Version 15, Jun 9, 2020

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Jul 8, 2019—Sep 17, 2019

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
58A	Natchaug and Catden mucks, 0 to 2 percent slopes	0.2	1.0%
242A	Hinckley loamy sand, 0 to 3 percent slopes	0.0	0.1%
242B	Hinckley loamy sand, 3 to 8 percent slopes	2.7	10.6%
242C	Hinckley loamy sand, 8 to 15 percent slopes	7.6	30.3%
298E	Groton and Hinckley soils, 25 to 35 percent slopes	7.6	30.2%
600	Pits, gravel	7.0	27.8%
Totals for Area of Interest		**25.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Berkshire County, Massachusetts

58A—Natchaug and Catden mucks, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2w670
Elevation: 650 to 1,240 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Natchaug and similar soils: 50 percent
Catden and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Natchaug

Setting

Landform: Depressions, depressions, depressions
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed organic material over loamy glaciofluvial deposits and/or loamy glaciolacustrine deposits and/or loamy till

Typical profile

Oa1 - 0 to 12 inches: muck
Oa2 - 12 to 31 inches: muck
2Cg1 - 31 to 39 inches: silt loam
2Cg2 - 39 to 79 inches: fine sandy loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.01 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Calcium carbonate, maximum content: 25 percent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Very high (about 17.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Description of Catden

Setting

Landform: Depressions, depressions, depressions
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Highly decomposed herbaceous organic material and/or highly decomposed woody organic material

Typical profile

Oa1 - 0 to 2 inches: muck
Oa2 - 2 to 79 inches: muck

Properties and qualities

Slope: 0 to 2 percent
Surface area covered with cobbles, stones or boulders: 0.0 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Very poorly drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.14 to 14.17 in/hr)
Depth to water table: About 0 to 6 inches
Frequency of flooding: None
Frequency of ponding: Frequent
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Very high (about 26.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Hydric soil rating: Yes

Minor Components

Halsey

Percent of map unit: 5 percent
Landform: Terraces
Landform position (three-dimensional): Tread
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

Lyons

Percent of map unit: 5 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

242A—Hinckley loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2svm7
Elevation: 0 to 1,420 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Outwash plains, outwash deltas, kame terraces, outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear, concave, convex
Across-slope shape: Linear, convex, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s

Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Merrimac
Percent of map unit: 5 percent
Landform: Outwash deltas, kame terraces, outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex, linear, concave
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Windsor
Percent of map unit: 5 percent
Landform: Outwash deltas, kame terraces, outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex, linear, concave
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Sudbury
Percent of map unit: 5 percent
Landform: Outwash deltas, kame terraces, outwash terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex, concave, linear
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

242B—Hinckley loamy sand, 3 to 8 percent slopes

Map Unit Setting
National map unit symbol: 2svm8
Elevation: 0 to 1,430 feet
Mean annual precipitation: 36 to 53 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 250 days
Farmland classification: Farmland of statewide importance

Map Unit Composition
Hinckley and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting
Landform: Outwash terraces, moraines, eskers, outwash plains, kames, outwash deltas, kame terraces
Landform position (two-dimensional): Summit, backslope, footslope, shoulder

Landform position (three-dimensional): Nose slope, side slope, base slope, crest, riser, tread
Down-slope shape: Linear, convex, concave
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Very low (about 3.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Windsor

Percent of map unit: 8 percent
Landform: Kame terraces, outwash terraces, moraines, eskers, outwash plains, kames, outwash deltas
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Nose slope, side slope, base slope, crest, tread, riser
Down-slope shape: Linear, convex, concave
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Sudbury

Percent of map unit: 5 percent
Landform: Outwash terraces, moraines, outwash plains, outwash deltas, kame terraces
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope, base slope, head slope, tread
Down-slope shape: Concave, linear
Across-slope shape: Linear, concave
Hydric soil rating: No

Agawam

Percent of map unit: 2 percent
Landform: Moraines, eskers, outwash plains, kames, outwash deltas, kame terraces, outwash terraces
Landform position (two-dimensional): Summit, shoulder, backslope, footslope
Landform position (three-dimensional): Nose slope, side slope, base slope, crest, tread, riser
Down-slope shape: Linear, convex, concave
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

242C—Hinckley loamy sand, 8 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2svm9
Elevation: 0 to 1,480 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 140 to 240 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Hinckley and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Hinckley

Setting

Landform: Kames, outwash deltas, kame terraces, outwash terraces, moraines, eskers, outwash plains
Landform position (two-dimensional): Shoulder, toeslope, footslope, backslope
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser
Down-slope shape: Linear, concave, convex
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 8 to 15 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: A
Ecological site: F144AY022MA - Dry Outwash
Hydric soil rating: No

Minor Components

Merrimac

Percent of map unit: 5 percent
Landform: Outwash terraces, moraines, eskers, outwash plains, kames
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Side slope, crest, head slope, nose slope, riser
Down-slope shape: Convex
Across-slope shape: Convex
Hydric soil rating: No

Windsor

Percent of map unit: 5 percent
Landform: Kames, outwash deltas, kame terraces, outwash terraces, moraines, eskers, outwash plains
Landform position (two-dimensional): Shoulder, backslope, footslope, toeslope
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser
Down-slope shape: Linear, concave, convex
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Sudbury

Percent of map unit: 5 percent
Landform: Outwash deltas, kame terraces, outwash terraces, moraines, outwash plains
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Base slope, tread
Down-slope shape: Concave, linear
Across-slope shape: Concave, linear
Hydric soil rating: No

298E—Groton and Hinckley soils, 25 to 35 percent slopes

Map Unit Setting

National map unit symbol: 2svls
Elevation: 640 to 1,270 feet
Mean annual precipitation: 36 to 71 inches
Mean annual air temperature: 39 to 55 degrees F
Frost-free period: 145 to 240 days
Farmland classification: Not prime farmland

Map Unit Composition

Groton and similar soils: 50 percent
Hinckley and similar soils: 40 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Groton

Setting

Landform: Outwash terraces, eskers, kames
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Crest, head slope, nose slope, side slope, riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and gravelly glaciofluvial deposits derived from limestone and dolomite and/or schist

Typical profile

Ap - 0 to 8 inches: gravelly sandy loam
Bw1 - 8 to 18 inches: very gravelly sandy loam
Bw2 - 18 to 24 inches: very gravelly loamy sand
Bw3 - 24 to 30 inches: very gravelly loamy sand
C1 - 30 to 52 inches: stratified extremely gravelly coarse sand to very gravelly loamy fine sand
C2 - 52 to 72 inches: stratified extremely gravelly coarse sand to gravelly loamy fine sand

Properties and qualities

Slope: 25 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 10 percent

Available water capacity: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Hydric soil rating: No

Description of Hinckley

Setting

Landform: Kame terraces, outwash terraces, moraines, eskers, outwash plains, kames, outwash deltas
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Nose slope, side slope, crest, head slope, riser
Down-slope shape: Linear, convex, concave
Across-slope shape: Convex, linear, concave
Parent material: Sandy and gravelly glaciofluvial deposits derived from gneiss and/or granite and/or schist

Typical profile

Oe - 0 to 1 inches: moderately decomposed plant material
A - 1 to 8 inches: loamy sand
Bw1 - 8 to 11 inches: gravelly loamy sand
Bw2 - 11 to 16 inches: gravelly loamy sand
BC - 16 to 19 inches: very gravelly loamy sand
C - 19 to 65 inches: very gravelly sand

Properties and qualities

Slope: 25 to 35 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to very high (1.42 to 99.90 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 1.9 mmhos/cm)
Available water capacity: Low (about 3.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: A
Hydric soil rating: No

Minor Components

Merrimac

Percent of map unit: 5 percent
Landform: Outwash plains, kames, kame terraces, outwash terraces, moraines, eskers
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope, crest, head slope, nose slope, riser

Down-slope shape: Convex, linear, concave
Across-slope shape: Convex, linear, concave
Hydric soil rating: No

Copake

Percent of map unit: 5 percent
Landform: Outwash terraces, kames
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Crest, head slope, nose slope, side slope, riser
Down-slope shape: Linear
Across-slope shape: Convex
Hydric soil rating: No

600—Pits, gravel

Map Unit Setting

National map unit symbol: 98vn
Mean annual precipitation: 32 to 50 inches
Mean annual air temperature: 45 to 50 degrees F
Frost-free period: 120 to 200 days
Farmland classification: Not prime farmland

Map Unit Composition

Pits, gravel: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pits, Gravel

Setting

Parent material: Loose sandy and gravelly glaciofluvial deposits derived from igneous and metamorphic rock

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

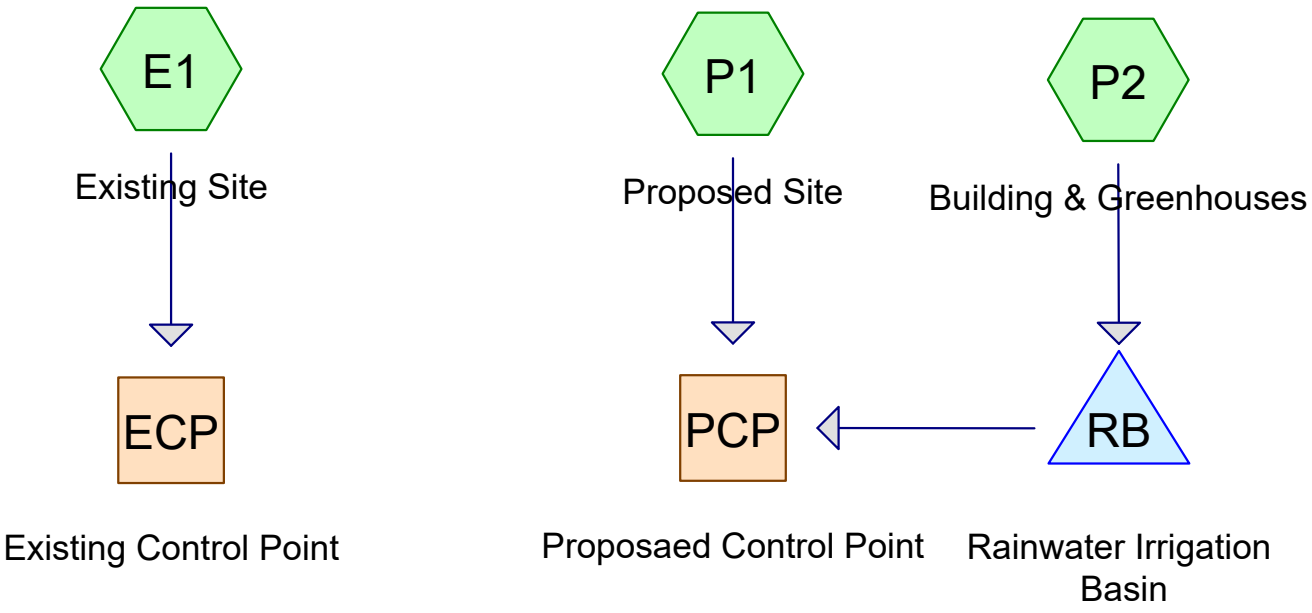
United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf



Subcat Reach Pond Link

Routing Diagram for IPA - Bullards Crossing
Prepared by Berkshire Design Group, Printed 1/3/2021

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
33.191	49	50-75% Grass cover, Fair, HSG A (E1, P1, P2)
2.422	96	Gravel surface, HSG A (E1, P1, P2)
1.781	30	Meadow, non-grazed, HSG A (P1)
0.503	98	Roofs, HSG A (P2)
2.181	64	Row crops, SR + CR, Good, HSG A (P1)
40.078	**52**	**TOTAL AREA**

Summary for Subcatchment E1: Existing Site

Runoff = 0.39 cfs @ 12.55 hrs, Volume= 0.152 af, Depth> 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.94"

Area (sf)	CN	Description
47,300	96	Gravel surface, HSG A
825,600	49	50-75% Grass cover, Fair, HSG A
872,900	52	Weighted Average
872,900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment P1: Proposed Site

Runoff = 0.37 cfs @ 12.55 hrs, Volume= 0.144 af, Depth> 0.09"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.94"

Area (sf)	CN	Description
52,700	96	Gravel surface, HSG A
95,000	64	Row crops, SR + CR, Good, HSG A
77,600	30	Meadow, non-grazed, HSG A
604,400	49	50-75% Grass cover, Fair, HSG A
829,700	52	Weighted Average
829,700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment P2: Building & Greenhouses

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 1.59 cfs @ 12.01 hrs, Volume= 0.092 af, Depth> 1.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2-Year Rainfall=2.94"

Area (sf)	CN	Description
21,900	98	Roofs, HSG A
5,500	96	Gravel surface, HSG A
15,800	49	50-75% Grass cover, Fair, HSG A
43,200	80	Weighted Average
21,300		49.31% Pervious Area
21,900		50.69% Impervious Area

Summary for Reach ECP: Existing Control Point

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 20.039 ac, 0.00% Impervious, Inflow Depth > 0.09" for 2-Year event
Inflow = 0.39 cfs @ 12.55 hrs, Volume= 0.152 af
Outflow = 0.39 cfs @ 12.55 hrs, Volume= 0.152 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach PCP: Proposaed Control Point

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 20.039 ac, 2.51% Impervious, Inflow Depth > 0.09" for 2-Year event
Inflow = 0.37 cfs @ 12.55 hrs, Volume= 0.144 af
Outflow = 0.37 cfs @ 12.55 hrs, Volume= 0.144 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond RB: Rainwater Irrigation Basin

Inflow Area = 0.992 ac, 50.69% Impervious, Inflow Depth > 1.11" for 2-Year event
Inflow = 1.59 cfs @ 12.01 hrs, Volume= 0.092 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Starting Elev= 1,471.00' Surf.Area= 2,315 sf Storage= 1,861 cf
Peak Elev= 1,472.32' @ 20.00 hrs Surf.Area= 3,775 sf Storage= 5,864 cf (4,003 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	1,470.00'	13,993 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,470.00	1,406	0	0
1,471.00	2,315	1,861	1,861
1,472.00	3,380	2,848	4,708
1,473.00	4,603	3,992	8,700
1,474.00	5,983	5,293	13,993

Device	Routing	Invert	Outlet Devices
#1	Primary	1,473.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,471.00' (Free Discharge)
↑—**1=Orifice/Grate** (Controls 0.00 cfs)

Summary for Subcatchment E1: Existing Site

Runoff = 6.24 cfs @ 12.22 hrs, Volume= 0.789 af, Depth> 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.38"

Area (sf)	CN	Description
47,300	96	Gravel surface, HSG A
825,600	49	50-75% Grass cover, Fair, HSG A
872,900	52	Weighted Average
872,900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment P1: Proposed Site

Runoff = 5.93 cfs @ 12.22 hrs, Volume= 0.750 af, Depth> 0.47"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.38"

Area (sf)	CN	Description
52,700	96	Gravel surface, HSG A
95,000	64	Row crops, SR + CR, Good, HSG A
77,600	30	Meadow, non-grazed, HSG A
604,400	49	50-75% Grass cover, Fair, HSG A
829,700	52	Weighted Average
829,700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment P2: Building & Greenhouses

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 3.15 cfs @ 12.00 hrs, Volume= 0.182 af, Depth> 2.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10-Year Rainfall=4.38"

Area (sf)	CN	Description
21,900	98	Roofs, HSG A
5,500	96	Gravel surface, HSG A
15,800	49	50-75% Grass cover, Fair, HSG A
43,200	80	Weighted Average
21,300		49.31% Pervious Area
21,900		50.69% Impervious Area

Summary for Reach ECP: Existing Control Point

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 20.039 ac, 0.00% Impervious, Inflow Depth > 0.47" for 10-Year event
Inflow = 6.24 cfs @ 12.22 hrs, Volume= 0.789 af
Outflow = 6.24 cfs @ 12.22 hrs, Volume= 0.789 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach PCP: Proposaed Control Point

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 20.039 ac, 2.51% Impervious, Inflow Depth > 0.45" for 10-Year event
Inflow = 5.93 cfs @ 12.22 hrs, Volume= 0.750 af
Outflow = 5.93 cfs @ 12.22 hrs, Volume= 0.750 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond RB: Rainwater Irrigation Basin

Inflow Area = 0.992 ac, 50.69% Impervious, Inflow Depth > 2.20" for 10-Year event
Inflow = 3.15 cfs @ 12.00 hrs, Volume= 0.182 af
Outflow = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min
Primary = 0.00 cfs @ 5.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Starting Elev= 1,471.00' Surf.Area= 2,315 sf Storage= 1,861 cf
Peak Elev= 1,473.23' @ 20.00 hrs Surf.Area= 4,917 sf Storage= 9,784 cf (7,924 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	1,470.00'	13,993 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,470.00	1,406	0	0
1,471.00	2,315	1,861	1,861
1,472.00	3,380	2,848	4,708
1,473.00	4,603	3,992	8,700
1,474.00	5,983	5,293	13,993

Device	Routing	Invert	Outlet Devices
#1	Primary	1,473.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=0.00 cfs @ 5.00 hrs HW=1,471.00' (Free Discharge)
↑—**1=Orifice/Grate** (Controls 0.00 cfs)

Summary for Subcatchment E1: Existing Site

Runoff = 43.73 cfs @ 12.16 hrs, Volume= 3.517 af, Depth> 2.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.78"

Area (sf)	CN	Description
47,300	96	Gravel surface, HSG A
825,600	49	50-75% Grass cover, Fair, HSG A
872,900	52	Weighted Average
872,900		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment P1: Proposed Site

Runoff = 41.56 cfs @ 12.16 hrs, Volume= 3.343 af, Depth> 2.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.78"

Area (sf)	CN	Description
52,700	96	Gravel surface, HSG A
95,000	64	Row crops, SR + CR, Good, HSG A
77,600	30	Meadow, non-grazed, HSG A
604,400	49	50-75% Grass cover, Fair, HSG A
829,700	52	Weighted Average
829,700		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.0					**Direct Entry,**

Summary for Subcatchment P2: Building & Greenhouses

[46] Hint: Tc=0 (Instant runoff peak depends on dt)

Runoff = 7.12 cfs @ 12.00 hrs, Volume= 0.422 af, Depth> 5.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 100-Year Rainfall=7.78"

Area (sf)	CN	Description
21,900	98	Roofs, HSG A
5,500	96	Gravel surface, HSG A
15,800	49	50-75% Grass cover, Fair, HSG A
43,200	80	Weighted Average
21,300		49.31% Pervious Area
21,900		50.69% Impervious Area

Summary for Reach ECP: Existing Control Point

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 20.039 ac, 0.00% Impervious, Inflow Depth > 2.11" for 100-Year event
Inflow = 43.73 cfs @ 12.16 hrs, Volume= 3.517 af
Outflow = 43.73 cfs @ 12.16 hrs, Volume= 3.517 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Reach PCP: Proposaed Control Point

[40] Hint: Not Described (Outflow=Inflow)

Inflow Area = 20.039 ac, 2.51% Impervious, Inflow Depth > 2.12" for 100-Year event
Inflow = 41.85 cfs @ 12.16 hrs, Volume= 3.548 af
Outflow = 41.85 cfs @ 12.16 hrs, Volume= 3.548 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Summary for Pond RB: Rainwater Irrigation Basin

Inflow Area = 0.992 ac, 50.69% Impervious, Inflow Depth > 5.11" for 100-Year event
Inflow = 7.12 cfs @ 12.00 hrs, Volume= 0.422 af
Outflow = 1.81 cfs @ 12.34 hrs, Volume= 0.206 af, Atten= 75%, Lag= 20.2 min
Primary = 1.81 cfs @ 12.34 hrs, Volume= 0.206 af

Routing by Stor-Ind method, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Starting Elev= 1,471.00' Surf.Area= 2,315 sf Storage= 1,861 cf
Peak Elev= 1,473.67' @ 12.34 hrs Surf.Area= 5,525 sf Storage= 12,084 cf (10,223 cf above start)

Plug-Flow detention time= 221.8 min calculated for 0.163 af (39% of inflow)
Center-of-Mass det. time= 94.2 min (861.5 - 767.2)

Volume	Invert	Avail.Storage	Storage Description
#1	1,470.00'	13,993 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
1,470.00	1,406	0	0
1,471.00	2,315	1,861	1,861
1,472.00	3,380	2,848	4,708
1,473.00	4,603	3,992	8,700
1,474.00	5,983	5,293	13,993

Device	Routing	Invert	Outlet Devices
#1	Primary	1,473.50'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads

Primary OutFlow Max=1.79 cfs @ 12.34 hrs HW=1,473.67' (Free Discharge)
↑—**1=Orifice/Grate** (Weir Controls 1.79 cfs @ 1.34 fps)

TAB 8

Site Plan for

Bullards Crossing

Hinsdale, Massachusetts
Application for Special Permit

Prepared For:

FFD Enterprises MA, Inc.
40 Woodland Street
Hartford, Connecticut 06105

Prepared By:

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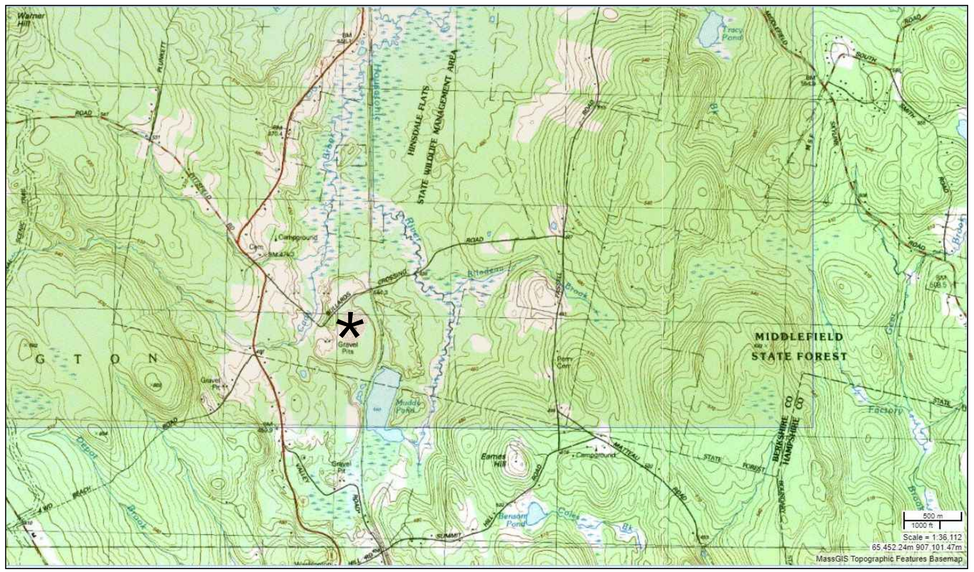
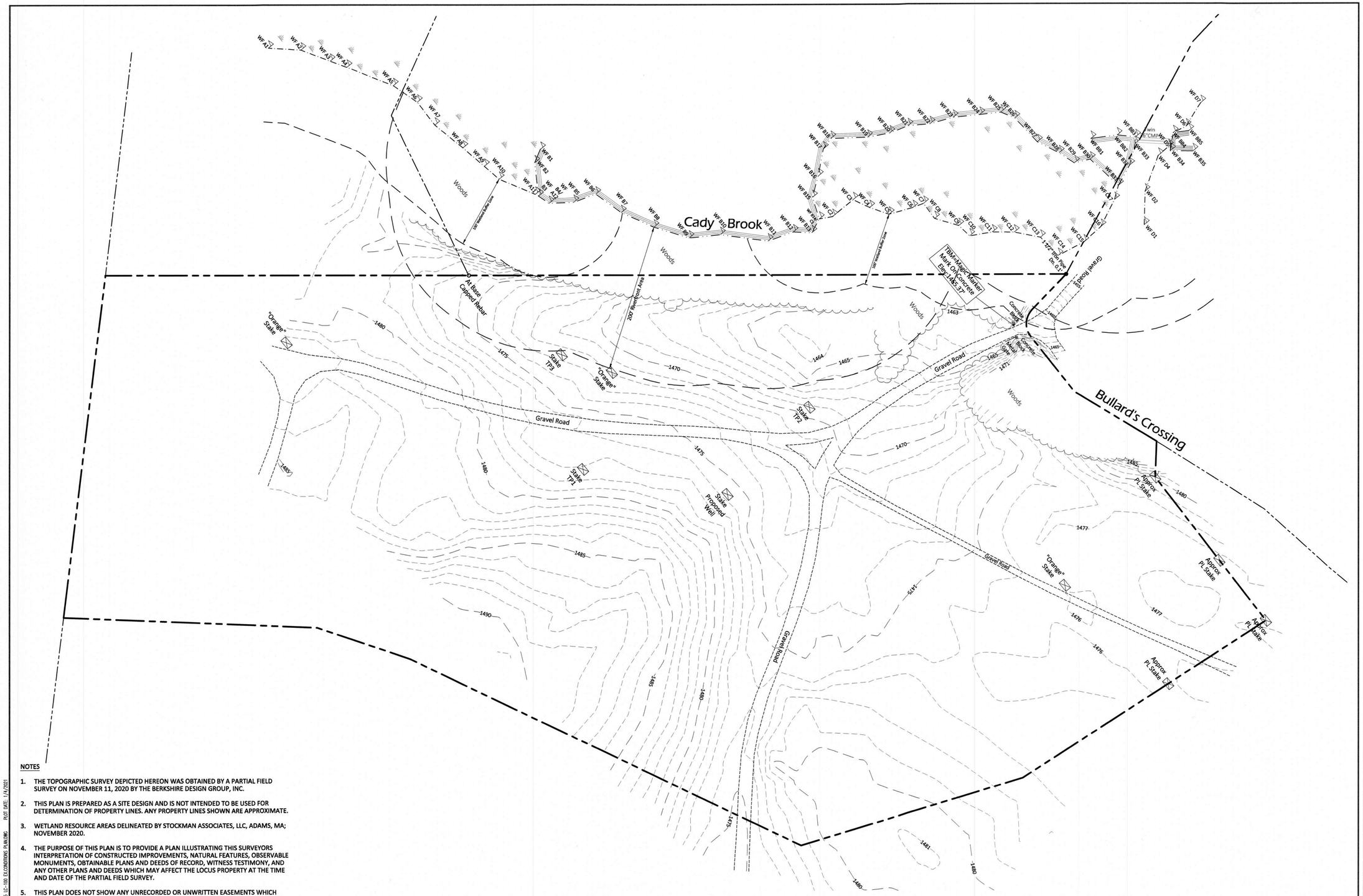


Locus Map

Date:

December 4, 2020
Revised January 4, 2020

Sheet Index



NOTES

1. THE TOPOGRAPHIC SURVEY DEPICTED HEREON WAS OBTAINED BY A PARTIAL FIELD SURVEY ON NOVEMBER 11, 2020 BY THE BERKSHIRE DESIGN GROUP, INC.
2. THIS PLAN IS PREPARED AS A SITE DESIGN AND IS NOT INTENDED TO BE USED FOR DETERMINATION OF PROPERTY LINES. ANY PROPERTY LINES SHOWN ARE APPROXIMATE.
3. WETLAND RESOURCE AREAS DELINEATED BY STOCKMAN ASSOCIATES, LLC, ADAMS, MA; NOVEMBER 2020.
4. THE PURPOSE OF THIS PLAN IS TO PROVIDE A PLAN ILLUSTRATING THIS SURVEYORS INTERPRETATION OF CONSTRUCTED IMPROVEMENTS, NATURAL FEATURES, OBSERVABLE MONUMENTS, OBTAINABLE PLANS AND DEEDS OF RECORD, WITNESS TESTIMONY, AND ANY OTHER PLANS AND DEEDS WHICH MAY AFFECT THE LOCUS PROPERTY AT THE TIME AND DATE OF THE PARTIAL FIELD SURVEY.
5. THIS PLAN DOES NOT SHOW ANY UNRECORDED OR UNWRITTEN EASEMENTS WHICH MAY EXIST. A REASONABLE AND DILIGENT ATTEMPT HAS BEEN MADE TO OBSERVE ANY APPARENT, VISIBLE USES OF THE LAND; HOWEVER, THIS DOES NOT CONSTITUTE A GUARANTEE THAT NO SUCH EASEMENTS EXIST.
6. THIS PLAN AND SURVEY WERE PREPARED USING GNSS AND CONVENTIONAL SURVEY METHODS. A LEICA TS15 TOTAL STATION WAS USED HAVING AN ACCURACY OF 5" AND 5 PPM. A LEICA GS14 NETWORK RTK WAS USED HAVING SUBCENTIMETER ACCURACY.
7. THE BASIS OF BEARINGS, AZIMUTHS, AND THE NORTH ARROW SHOWN HEREON IS THE MASSACHUSETTS STATE PLANE COORDINATE SYSTEM (NAD83). THE BASIS OF THE ELEVATIONS DEPICTED HEREON IS A GRID SEPARATION CALCULATION BASED ON GEOID12A RESULTING IN NAVD88.
8. THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS. IF A DISCREPANCY IS FOUND BETWEEN THIS PLAN AND THE ACTUAL FIELD CONDITION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER.

REFERENCE PLANS

1. "PLAN OF LAND PREPARED FOR VIVIAN MASON AND PETER MASON BILLARD'S CROSSING HINSDALE, MA." DATED: MARCH 21, 2017 BY FORESIGHT LAND SERVICES AND RECORDED AS PLAT O #40.
2. "PLAN TO BE CONVEYED TO PETER D. & VIVIAN I. MASON ON BILLARD CROSSROAD HINSDALE" DATED: AUGUST 1986 BY R.D. JORDAN P.L.S. AND RECORDED IN PLAT 417M #58.
3. "PLAN TO BE CONVEYED TO PETER D. & VIVIAN I. MASON ON BILLARD CROSSROAD HINSDALE" DATED: NOVEMEBR 1987 BY R.D. JORDAN P.L.S. AND RECORDED IN PLAT 417M #152.

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COMMONWEALTH OF MASSACHUSETTS
CHRISTOPHER M. CHAMBERLAND
CIVIL
NO. 51074
REGISTERED PROFESSIONAL ENGINEER

FFD ENTERPRISES MA, INC.

BULLARDS CROSSING

FOR PERMIT
NOT FOR CONSTRUCTION

EXISTING CONDITIONS

Revisions

Date: 12, 04, 2020	Sheet Number
Scale: 1"=60'	LC-100
Drawn By: JM	
Checked By: TA	

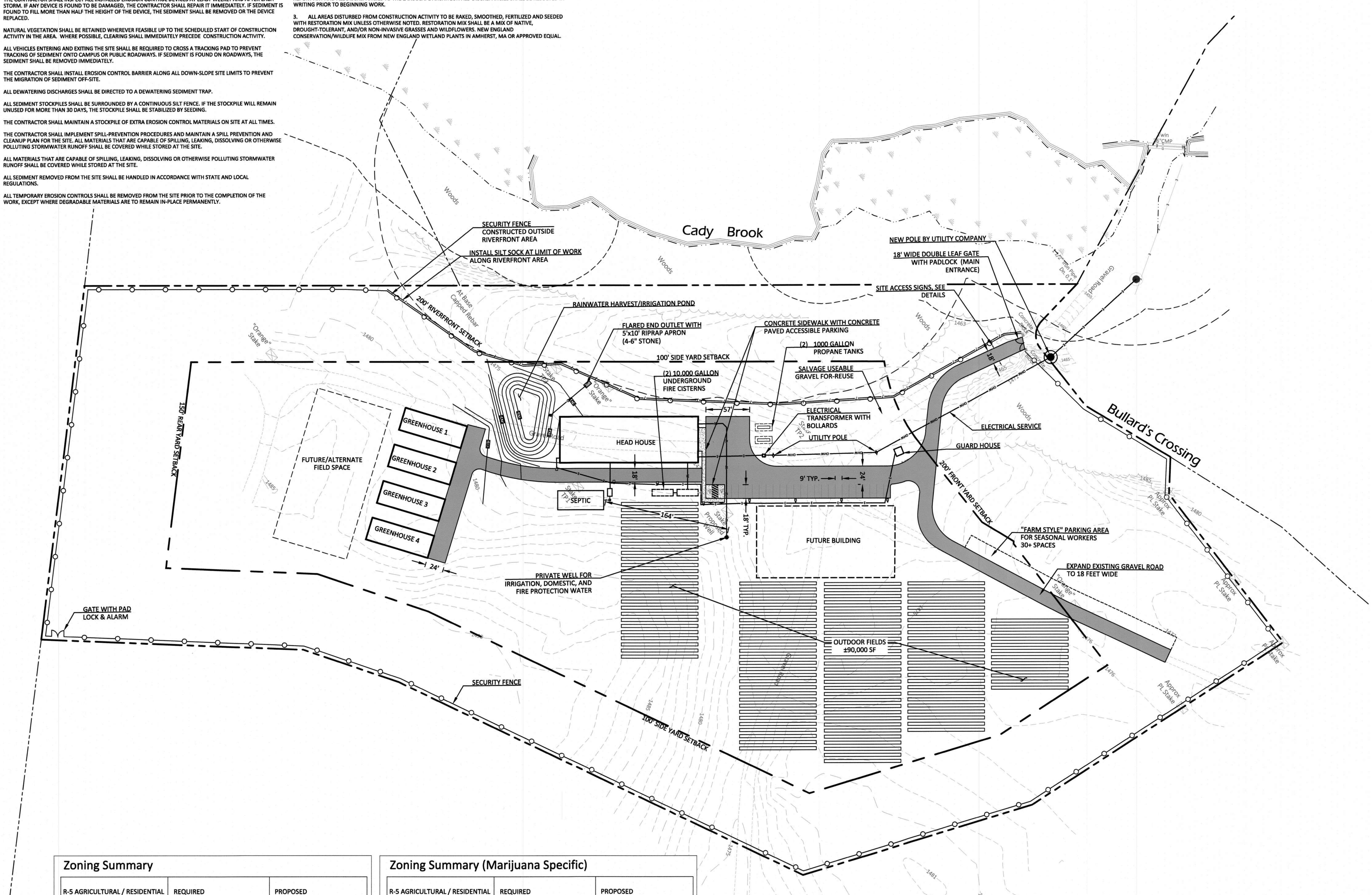
F:\HINSDALE - BULLARDS CROSSING RFA\02-DESIGN\DRAWINGS\20.125_LC-100_EXISTING CONDITIONS PLAN.DWG PLOT DATE: 1/4/2021

EROSION CONTROL NOTES

1. THE CONTRACTOR SHALL INSTALL EROSION CONTROL DEVICES AS NECESSARY TO PREVENT EROSION WITHIN THE SITE AND MIGRATION OF SEDIMENT OUT OF THE SITE, OR AS DIRECTED BY THE ENGINEER. ALL DEVICES SHALL COMPLY WITH THE MASSACHUSETTS EROSION AND SEDIMENT CONTROL GUIDELINES, CURRENT VERSION.
2. THE CONTRACTOR SHALL INSPECT ALL INSTALLED EROSION CONTROL DEVICES AT LEAST WEEKLY AND AFTER EACH STORM. IF ANY DEVICE IS FOUND TO BE DAMAGED, THE CONTRACTOR SHALL REPAIR IT IMMEDIATELY. IF SEDIMENT IS FOUND TO FILL MORE THAN HALF THE HEIGHT OF THE DEVICE, THE SEDIMENT SHALL BE REMOVED OR THE DEVICE REPLACED.
3. NATURAL VEGETATION SHALL BE RETAINED WHEREVER FEASIBLE UP TO THE SCHEDULED START OF CONSTRUCTION ACTIVITY IN THE AREA. WHERE POSSIBLE, CLEARING SHALL IMMEDIATELY PRECEDE CONSTRUCTION ACTIVITY.
4. ALL VEHICLES ENTERING AND EXITING THE SITE SHALL BE REQUIRED TO CROSS A TRACKING PAD TO PREVENT TRACKING OF SEDIMENT ONTO CAMPUS OR PUBLIC ROADWAYS. IF SEDIMENT IS FOUND ON ROADWAYS, THE SEDIMENT SHALL BE REMOVED IMMEDIATELY.
5. THE CONTRACTOR SHALL INSTALL EROSION CONTROL BARRIER ALONG ALL DOWN-SLOPE SITE LIMITS TO PREVENT THE MIGRATION OF SEDIMENT OFF-SITE.
6. ALL DEWATERING DISCHARGES SHALL BE DIRECTED TO A DEWATERING SEDIMENT TRAP.
7. ALL SEDIMENT STOCKPILES SHALL BE SURROUNDED BY A CONTINUOUS SILT FENCE. IF THE STOCKPILE WILL REMAIN UNUSED FOR MORE THAN 30 DAYS, THE STOCKPILE SHALL BE STABILIZED BY SEEDING.
8. THE CONTRACTOR SHALL MAINTAIN A STOCKPILE OF EXTRA EROSION CONTROL MATERIALS ON SITE AT ALL TIMES.
9. THE CONTRACTOR SHALL IMPLEMENT SPILL-PREVENTION PROCEDURES AND MAINTAIN A SPILL PREVENTION AND CLEANUP PLAN FOR THE SITE. ALL MATERIALS THAT ARE CAPABLE OF SPILLING, LEAKING, DISSOLVING OR OTHERWISE POLLUTING STORMWATER RUNOFF SHALL BE COVERED WHILE STORED AT THE SITE.
10. ALL MATERIALS THAT ARE CAPABLE OF SPILLING, LEAKING, DISSOLVING OR OTHERWISE POLLUTING STORMWATER RUNOFF SHALL BE COVERED WHILE STORED AT THE SITE.
11. ALL SEDIMENT REMOVED FROM THE SITE SHALL BE HANDLED IN ACCORDANCE WITH STATE AND LOCAL REGULATIONS.
12. ALL TEMPORARY EROSION CONTROLS SHALL BE REMOVED FROM THE SITE PRIOR TO THE COMPLETION OF THE WORK, EXCEPT WHERE DEGRADABLE MATERIALS ARE TO REMAIN IN-PLACE PERMANENTLY.

LAYOUT NOTES

1. ALL LINES OR POINTS ARE PERPENDICULAR OR PARALLEL TO LINES FROM WHICH THEY ARE MEASURED UNLESS OTHERWISE NOTED; WRITTEN DIMENSIONS SHALL PREVAIL.
2. THE CONTRACTOR SHALL VERIFY ALL LAYOUT, DIMENSIONS, GRADES, AND INVERTS PRIOR TO CONSTRUCTION; REPORT ANY AND ALL DISCREPANCIES TO THE LANDSCAPE ARCHITECT. ALL DISCREPANCIES SHALL BE RESOLVED IN WRITING PRIOR TO BEGINNING WORK.
3. ALL AREAS DISTURBED FROM CONSTRUCTION ACTIVITY TO BE RAKED, SMOOTHED, FERTILIZED AND SEEDED WITH RESTORATION MIX UNLESS OTHERWISE NOTED. RESTORATION MIX SHALL BE A MIX OF NATIVE, DROUGHT-TOLERANT, AND/OR NON-INVASIVE GRASSES AND WILDFLOWERS. NEW ENGLAND CONSERVATION/WILDLIFE MIX FROM NEW ENGLAND WETLAND PLANTS IN AMHERST, MA OR APPROVED EQUAL.



Zoning Summary

R-5 AGRICULTURAL / RESIDENTIAL	REQUIRED	PROPOSED
MIN. LOT AREA	130,000 SF	872,912
MIN. FRONTAGE	250 FT	526 FT
MIN. FRONT YARD	60 FT	380 FT
MIN. SIDE YARD	30 FT	100 FT
MIN. REAR YARD	30 FT	500 FT
MAX. BUILDING HEIGHT	35', 2.5 STORY	SINGLE STORY

Zoning Summary (Marijuana Specific)

R-5 AGRICULTURAL / RESIDENTIAL	REQUIRED	PROPOSED
MIN. FRONT YARD	200 FT	200 FT
MIN. SIDE YARD	100 FT	100 FT
MIN. REAR YARD	150 FT	500 FT

F:\HINSDALE - BULLARDS CROSSING IPA\02-DESIGN\DRAWINGS\20.125 LC-200 SITE PLAN.DWG PLOT DATE: 1/4/2021

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COMMONWEALTH OF MASSACHUSETTS — CHRISTOPHER M. CHAMBERLAND — CIVIL — NO. 51074 — REGISTERED PROFESSIONAL ENGINEER

FFD ENTERPRISES MA, INC.

BULLARDS CROSSING

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OVERALL SITE PLAN

Revisions

1-4-2021 MEPA SUBMISSION

Date: 12-04-2020
Scale: 1"=60'
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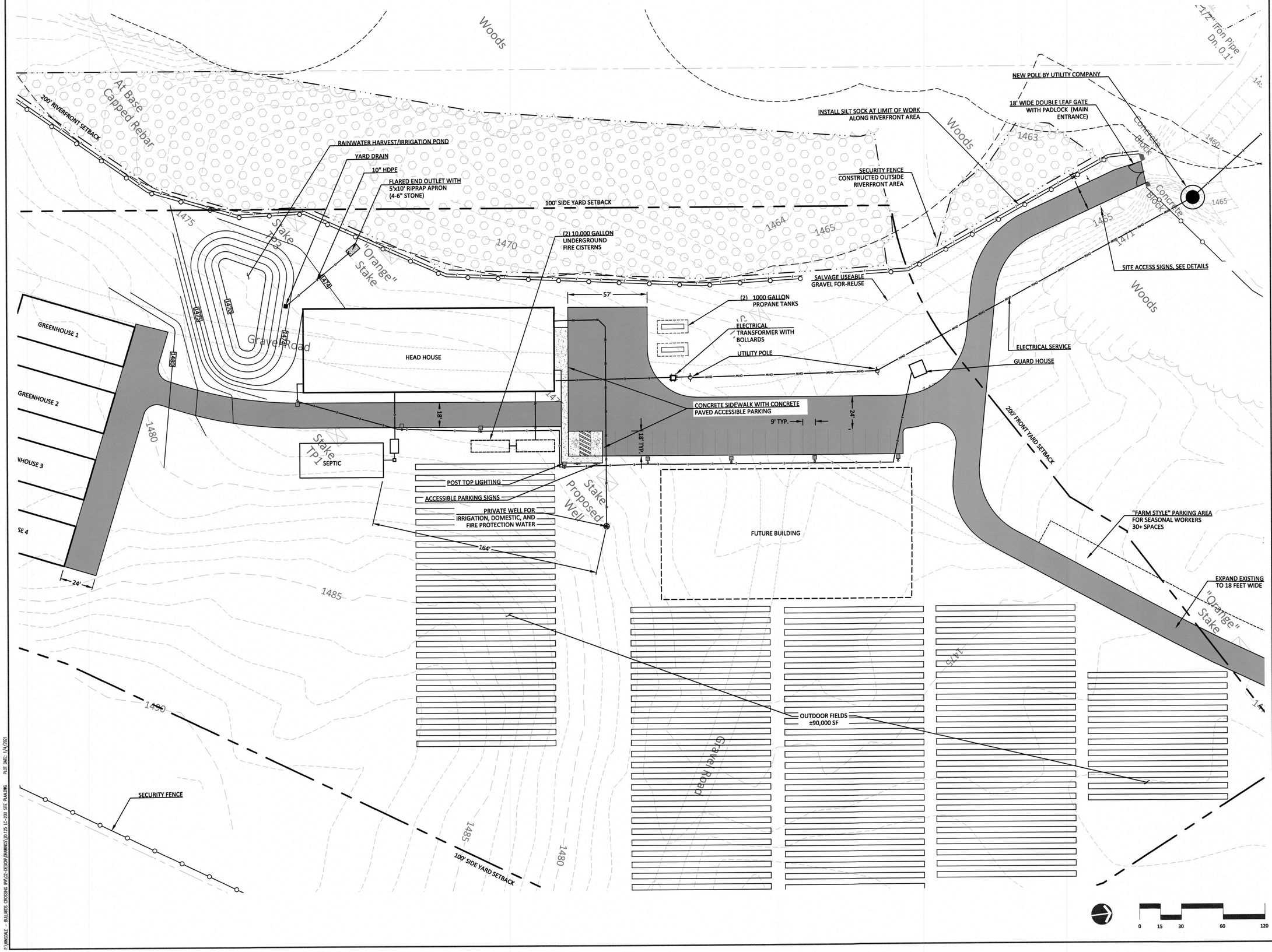
Checked By: CC

Sheet Number: LC-300



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SITE PLAN ENLARGEMENT

Revisions

1-4-2021	MEPA SUBMISSION

Date:	12-04-2020
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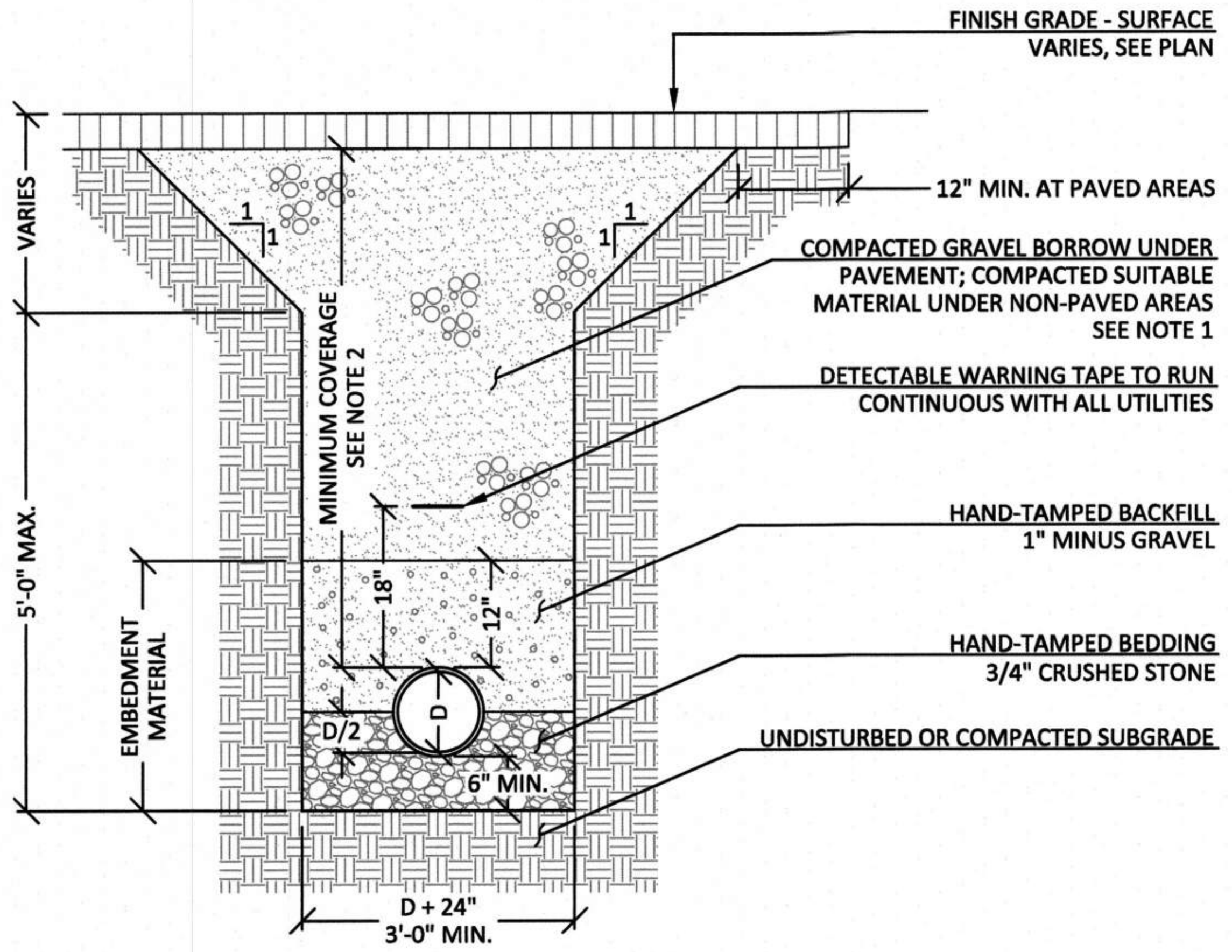
Checked By:	CC

Sheet Number
LC-301

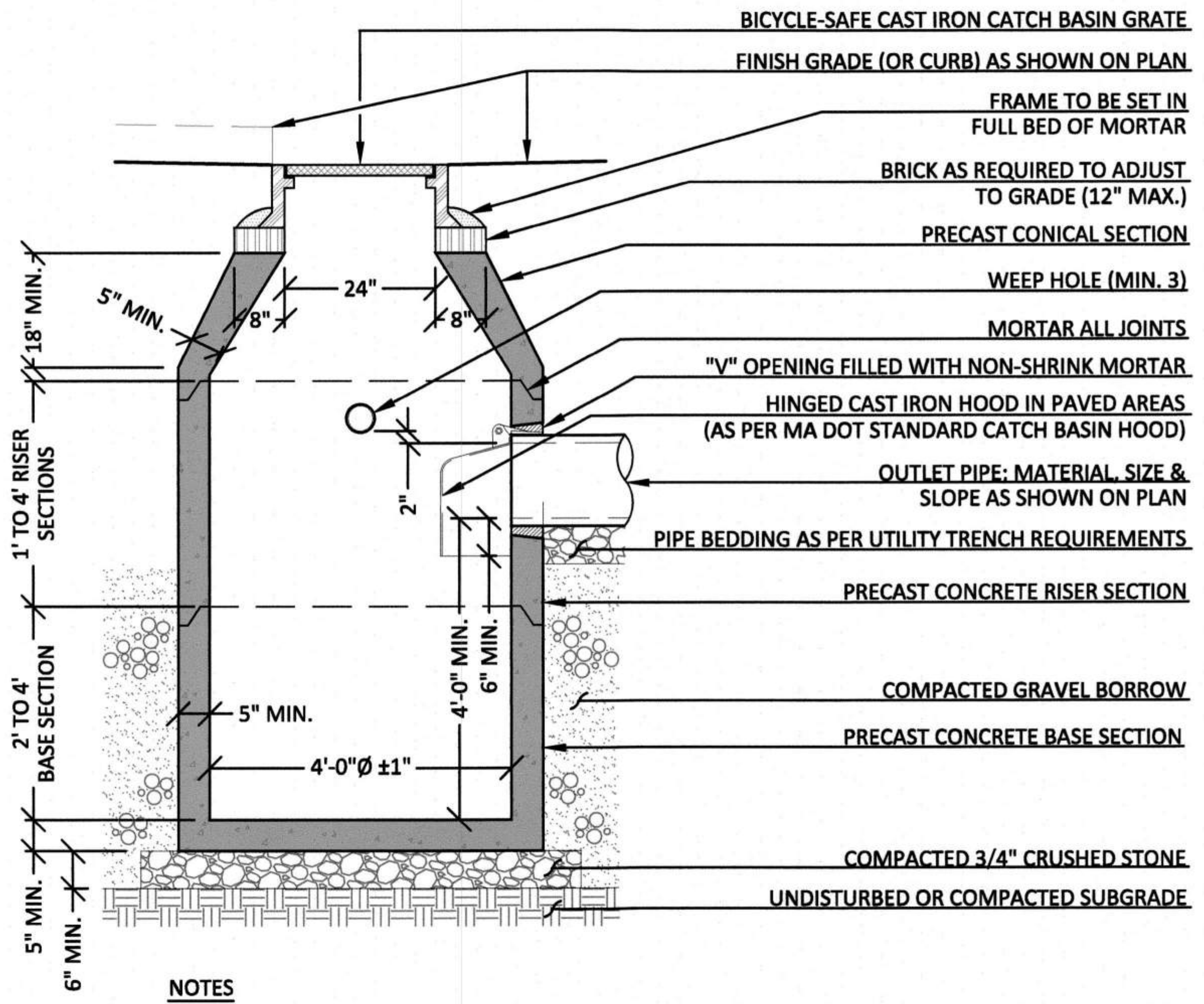
F:\WINSNAE - BULLARDS CROSSING (PAV)\2-DESIGN\DRAWINGS\25.125 LC-200 SITE PLAN.DWG PLOT DATE: 1/4/2021


FINISH GRADE - SURFACE VARIES, SEE PLAN
12" MIN. AT PAVED AREAS
COMPACTED GRAVEL BORROW UNDER PAVEMENT; COMPACTED SUITABLE MATERIAL UNDER NON-PAVED AREAS SEE NOTE 1
DETECTABLE WARNING TAPE TO RUN CONTINUOUS WITH ALL UTILITIES
HAND-TAMPED BACKFILL 1" MINUS GRAVEL
HAND-TAMPED BEDDING 3/4" CRUSHED STONE
UNDISTURBED OR COMPACTED SUBGRADE
VARIES
5'-0" MAX.
EMBEDMENT MATERIAL
MINIMUM COVERAGE SEE NOTE 2
18"
12"
D
D/2
6" MIN.
D + 24"
3'-0" MIN.

NOTES

1. NATIVE EXCAVATED MATERIAL THAT MEETS THE SPECIFICATIONS FOR SUITABLE FILL MAY BE USED AS BACKFILL IN NON-PAVED AREAS. SUITABILITY SHALL BE DETERMINED IN THE FIELD BY THE ENGINEER.
2. MINIMUM COVERAGE REQUIREMENTS:
   WATER: 5'-0"
   SANITARY: 4'-0"
   GAS: 2'-6"
   ELECTRICAL/COMMUNICATION: 2'-0"
3. ENTIRE PIPE LENGTH SHALL BE FIRMLY SUPPORTED ON BEDDING.

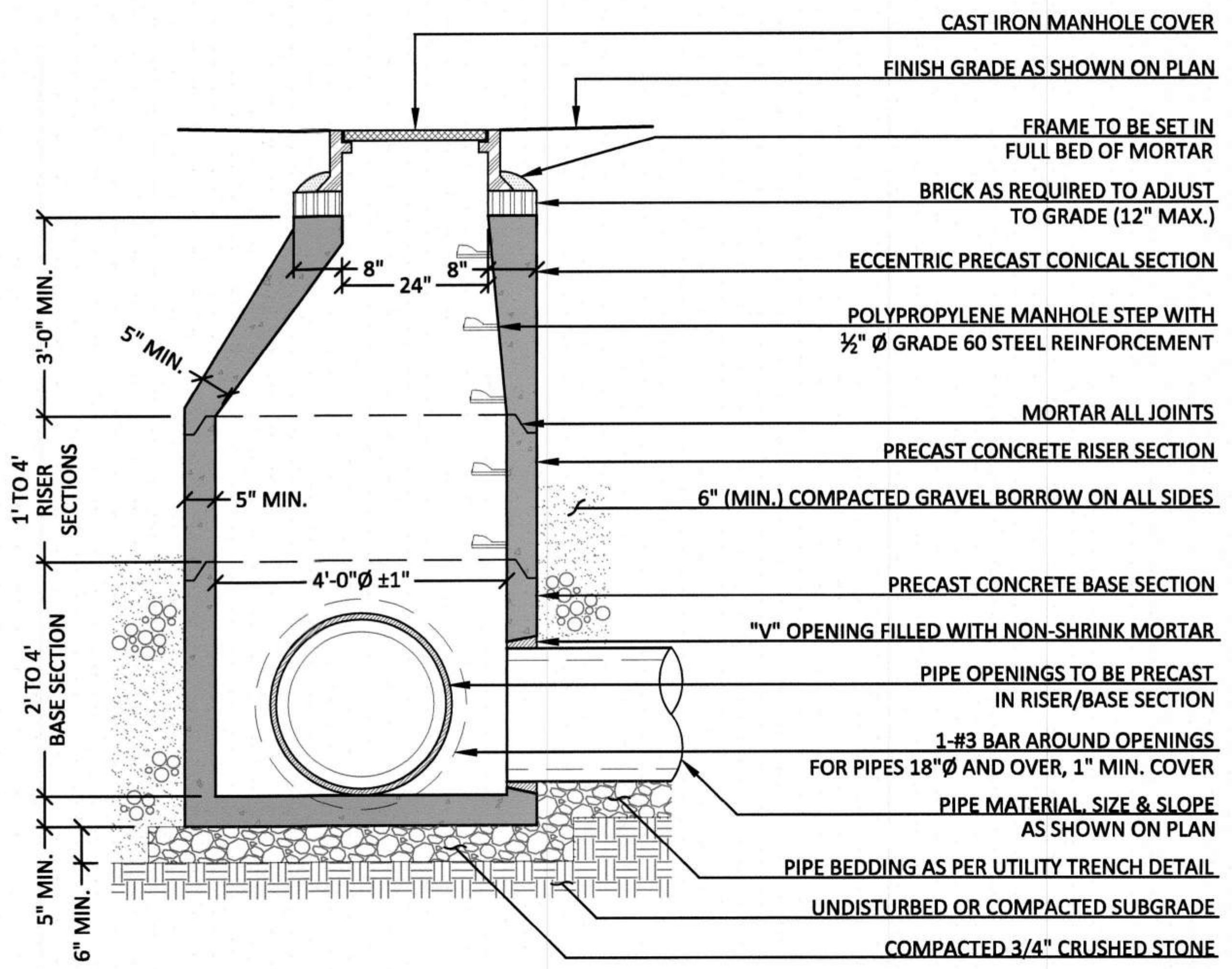
1 UTILITY TRENCH
NOT TO SCALE


BICYCLE-SAFE CAST IRON CATCH BASIN GRATE
FINISH GRADE (OR CURB) AS SHOWN ON PLAN
FRAME TO BE SET IN FULL BED OF MORTAR
BRICK AS REQUIRED TO ADJUST TO GRADE (12" MAX.)
PRECAST CONICAL SECTION
WEEP HOLE (MIN. 3)
MORTAR ALL JOINTS
"V" OPENING FILLED WITH NON-SHRINK MORTAR
HINGED CAST IRON HOOD IN PAVED AREAS (AS PER MA DOT STANDARD CATCH BASIN HOOD)
OUTLET PIPE: MATERIAL, SIZE & SLOPE AS SHOWN ON PLAN
PIPE BEDDING AS PER UTILITY TRENCH REQUIREMENTS
PRECAST CONCRETE RISER SECTION
COMPACTED GRAVEL BORROW
PRECAST CONCRETE BASE SECTION
COMPACTED 3/4" CRUSHED STONE
UNDISTURBED OR COMPACTED SUBGRADE
5" MIN.
24"
8"
18" MIN.
1' TO 4' RISER SECTIONS
2' TO 4' BASE SECTION
2"
4'-0" MIN.
6" MIN.
4'-0"Ø ±1"
6" MIN.

NOTES

1. WEEP HOLES SHALL BE 4" SDR35 PVC PIPE 12" LONG PLACED THROUGH EACH WALL OF CATCH BASIN. OUTSIDE END TO BE COVERED WITH 1/4" MESH, GALVANIZED WIRE SCREEN. PLACE 1/4 CUBIC YARD 3/4" CRUSHED STONE AROUND OUTSIDE END OF PIPE. USE MINIMUM OF 3 WEEP HOLES PER BASIN.
2. CONTRACTOR MAY UTILIZE PRECAST FLAT TOP SECTION WHERE DEPTH OF BASIN PROHIBITS THE USE OF CONICAL SECTION.
3. CONCRETE COMPRESSIVE STRENGTH SHALL BE 4,000 PSI (MIN.).
4. STRUCTURE SHALL BE REINFORCED TO MEET OR EXCEED H20 LOADING.

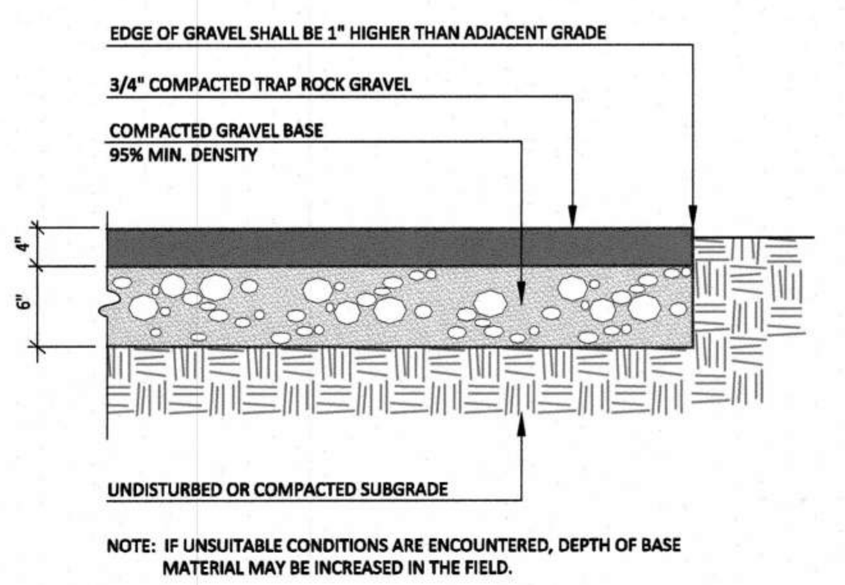
2 CATCH BASIN
NOT TO SCALE


CAST IRON MANHOLE COVER
FINISH GRADE AS SHOWN ON PLAN
FRAME TO BE SET IN FULL BED OF MORTAR
BRICK AS REQUIRED TO ADJUST TO GRADE (12" MAX.)
ECCENTRIC PRECAST CONICAL SECTION
POLYPROPYLENE MANHOLE STEP WITH ½" Ø GRADE 60 STEEL REINFORCEMENT
MORTAR ALL JOINTS
PRECAST CONCRETE RISER SECTION
6" (MIN.) COMPACTED GRAVEL BORROW ON ALL SIDES
PRECAST CONCRETE BASE SECTION
"V" OPENING FILLED WITH NON-SHRINK MORTAR
PIPE OPENINGS TO BE PRECAST IN RISER/BASE SECTION
1-#3 BAR AROUND OPENINGS FOR PIPES 18"Ø AND OVER, 1" MIN. COVER
PIPE MATERIAL, SIZE & SLOPE AS SHOWN ON PLAN
PIPE BEDDING AS PER UTILITY TRENCH DETAIL
UNDISTURBED OR COMPACTED SUBGRADE
COMPACTED 3/4" CRUSHED STONE
8"
24"
5" MIN.
3'-0" MIN.
1' TO 4' RISER SECTIONS
2' TO 4' BASE SECTION
4'-0"Ø ±1"
6" MIN.

NOTES

1. CONTRACTOR MAY UTILIZE PRECAST FLAT TOP SECTION WHERE DEPTH OF STRUCTURE PROHIBITS THE USE OF CONICAL SECTION.
2. CONCRETE COMPRESSIVE STRENGTH SHALL BE 4,000 PSI (MIN.).
3. STRUCTURE SHALL BE REINFORCED TO MEET OR EXCEED H20 LOADING.

3 DRAIN MANHOLE
NOT TO SCALE

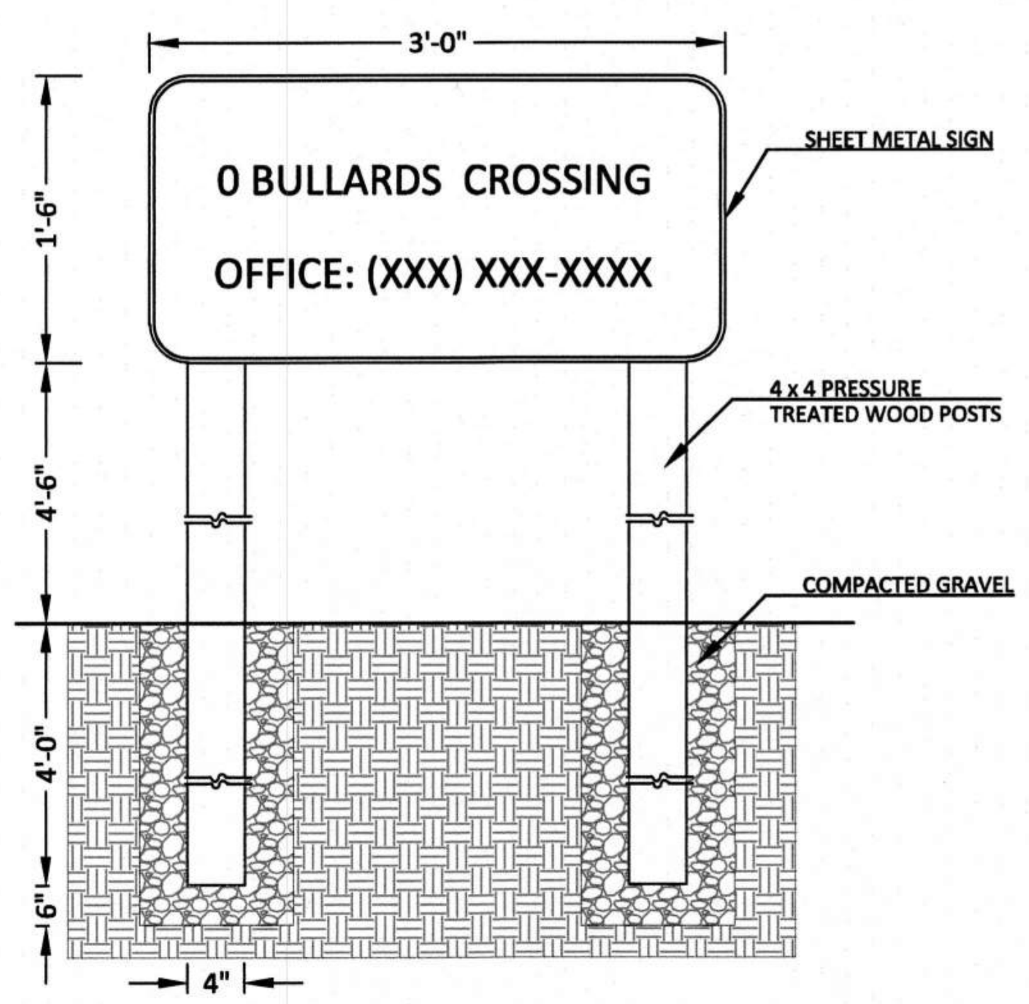


NOTE: IF UNSUITABLE CONDITIONS ARE ENCOUNTERED, DEPTH OF BASE MATERIAL MAY BE INCREASED IN THE FIELD.

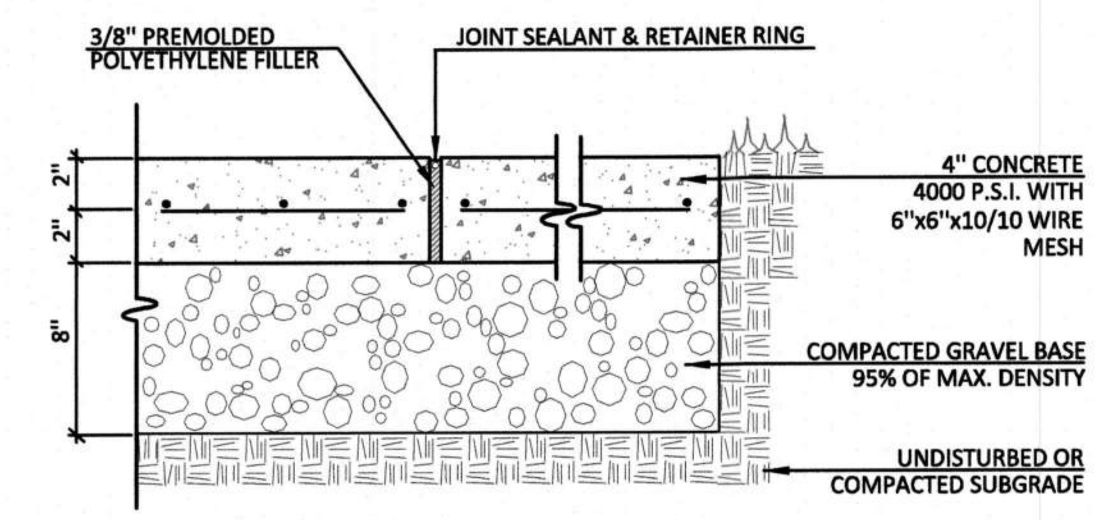
4 GRAVEL ACCESS DRIVE
NOT TO SCALE

NOTES
1. METAL SIGN TO BE PLACED ON ENTRANCE FENCE GATE.

5 ACCESS SIGN
NOT TO SCALE



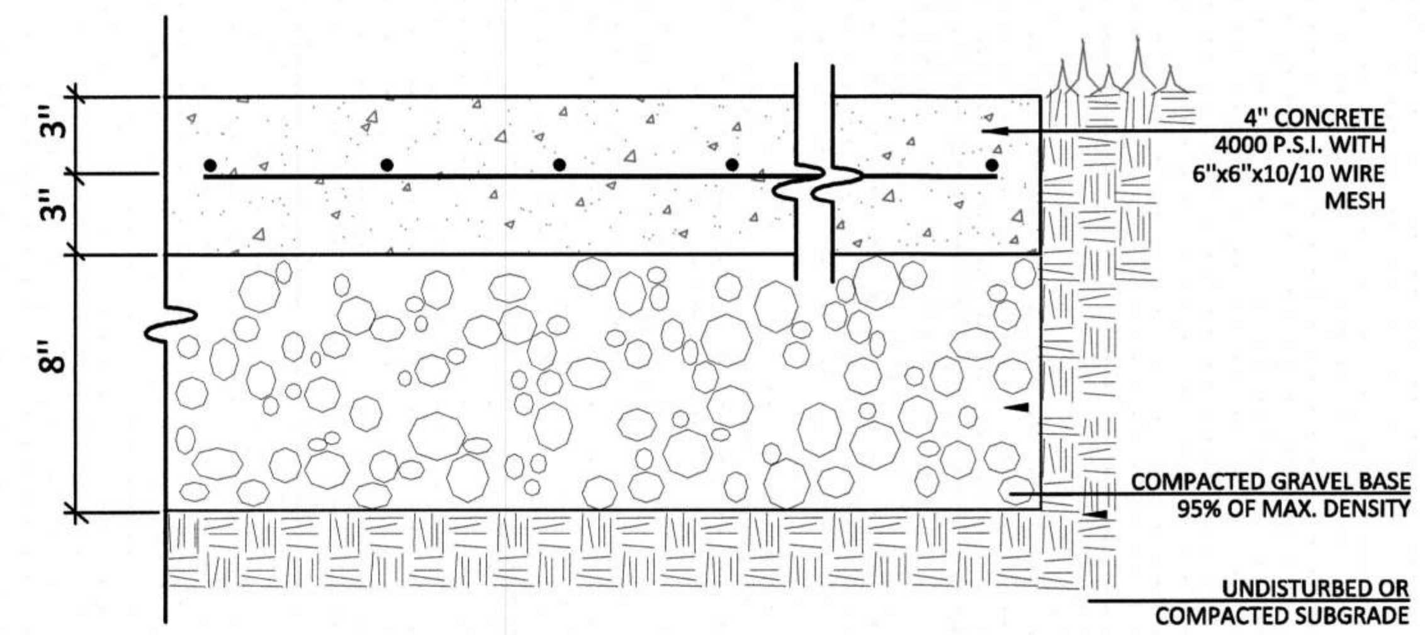
6 PROPERTY SIGN
NOT TO SCALE



NOTES

1. CONCRETE FINISH TO BE MEDIUM TEXTURE BROOM FINISH PERPENDICULAR TO DIRECTION OF WALK WITH 3" TROWELLED EDGES
2. WALKWAYS: SCORING EVERY 5', EXPANSION JOINTS EVERY 20' UNLESS OTHERWISE INDICATED ON PLAN; PROVIDE EXPANSION JOINTS AT ALL VERTICAL WALLS & ISOLATION JOINTS AT ALL FOOTINGS SCORING LINES SHALL BE AT LEAST 1/4 THICKNESS OF SIDEWALK.
3. JOINTS SHALL BE 3/8" TO 5/8" GAP BETWEEN CURB SECTIONS.
4. ALL JOINTS SHALL BE FILLED WITH MORTAR.

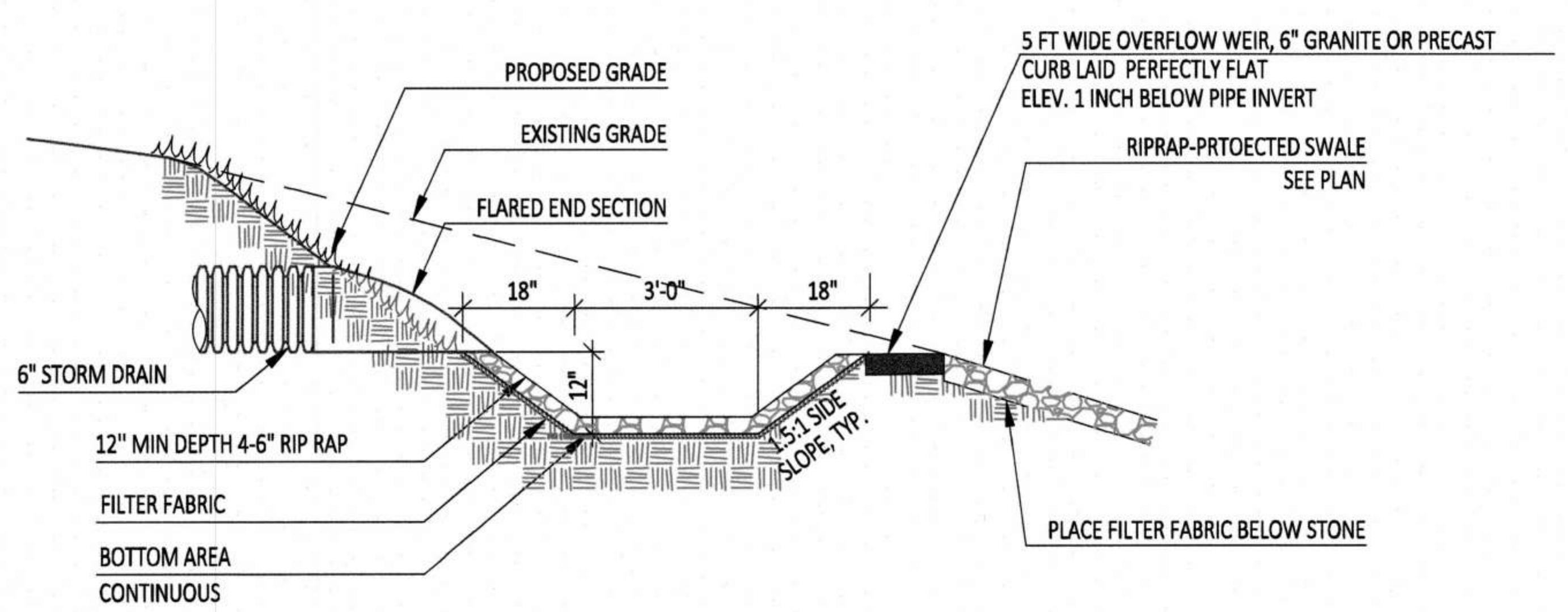
7 CONCRETE SIDEWALK
NOT TO SCALE



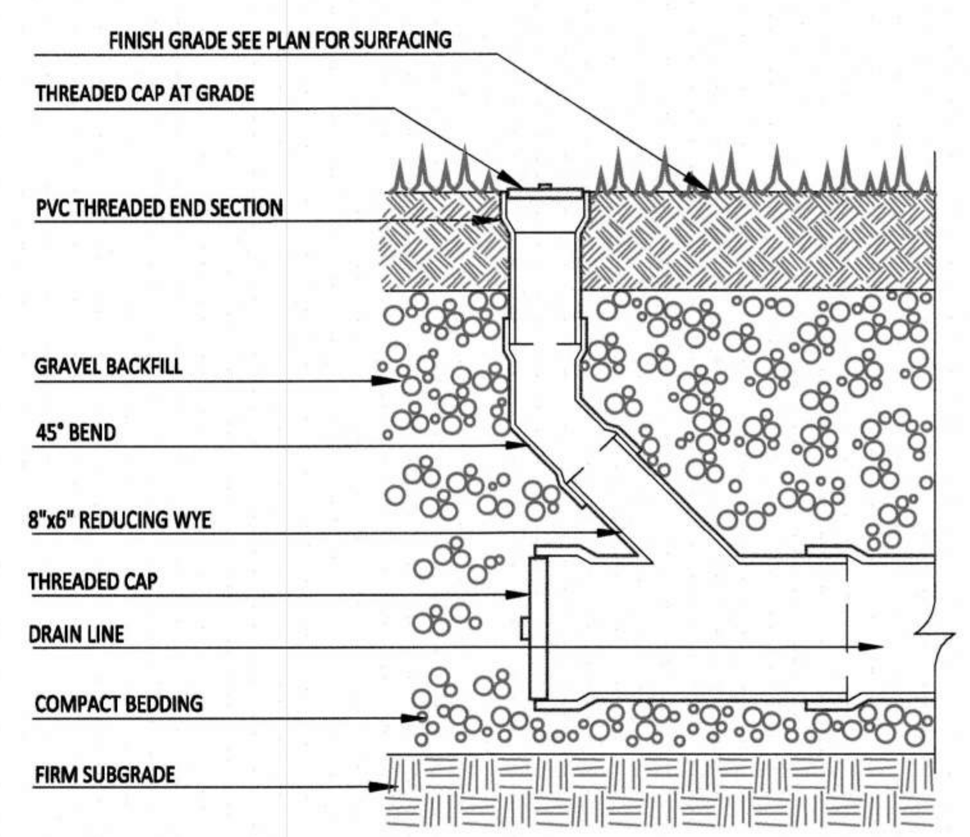
NOTES:

1) CONCRETE FINISH TO BE MEDIUM TEXTURE BROOM FINISH WITH 3" TROWELED EDGES.
2) ACTUAL PAD SIZE REQUIREMENTS TO BE DETERMINED FROM APPROVED SHOP DRAWINGS.
3) SEE DRAWINGS FOR EQUIPMENT LOCATIONS.

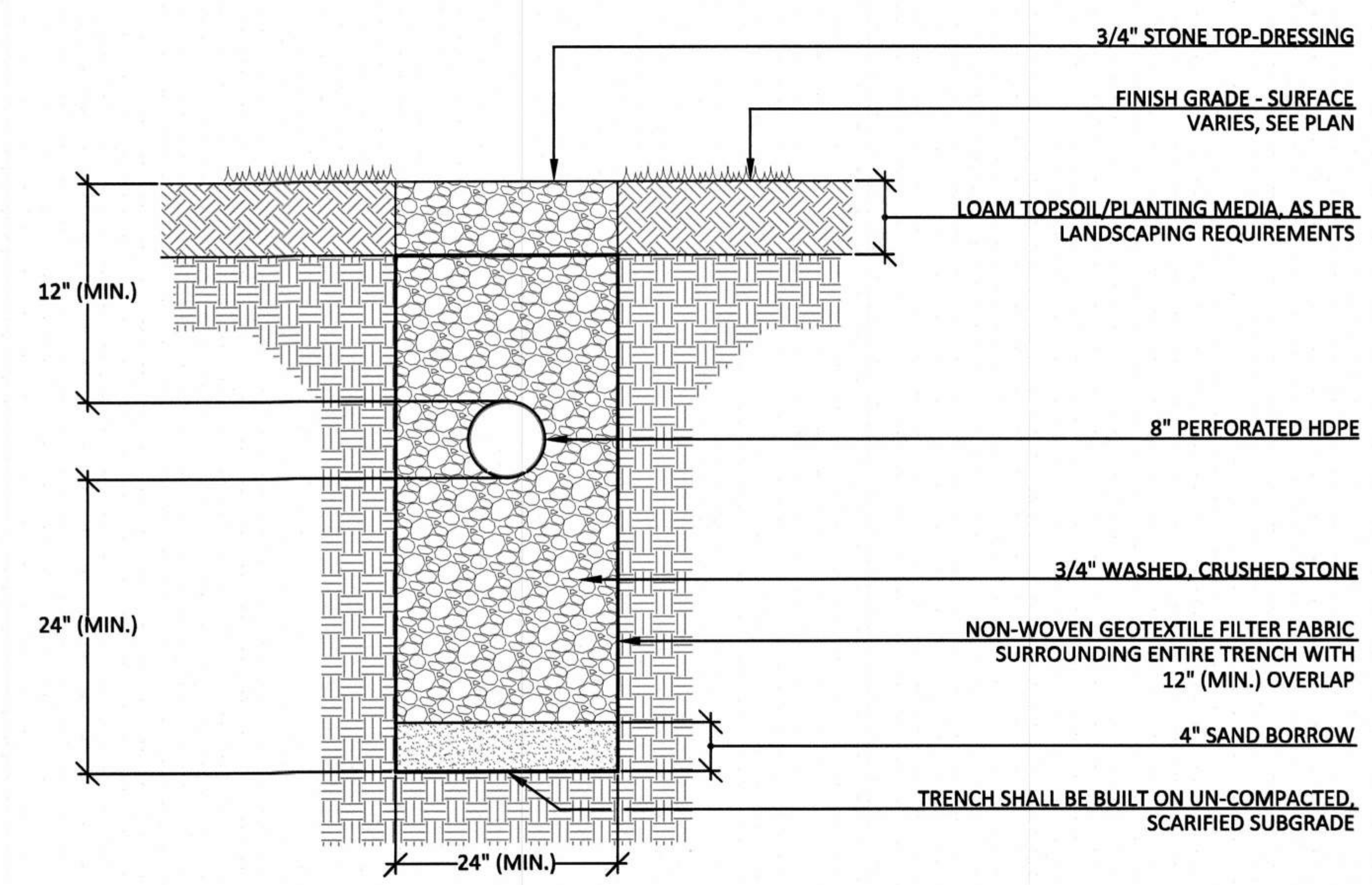
8 6" CONCRETE PAVING
NOT TO SCALE


PROPOSED GRADE
EXISTING GRADE
FLARED END SECTION
5 FT WIDE OVERFLOW WEIR, 6" GRANITE OR PRECAST CURB LAID PERFECTLY FLAT ELEV. 1 INCH BELOW PIPE INVERT
RIPRAP-PRTOECTED SWALE SEE PLAN
6" STORM DRAIN
12" MIN DEPTH 4-6" RIP RAP
FILTER FABRIC
BOTTOM AREA CONTINUOUS
PLACE FILTER FABRIC BELOW STONE
18"
3'-0"
18"
12"
1.5:1 SIDE SLOPE, TYP.

9 LEVEL LIP SPREADER
NOT TO SCALE



10 DRAIN CLEANOUT
NOT TO SCALE


3/4" STONE TOP-DRESSING
FINISH GRADE - SURFACE VARIES, SEE PLAN
LOAM TOPSOIL/PLANTING MEDIA, AS PER LANDSCAPING REQUIREMENTS
8" PERFORATED HDPE
3/4" WASHED, CRUSHED STONE
NON-WOVEN GEOTEXTILE FILTER FABRIC SURROUNDING ENTIRE TRENCH WITH 12" (MIN.) OVERLAP
4" SAND BORROW
TRENCH SHALL BE BUILT ON UN-COMPACTED, SCARIFIED SUBGRADE
12" (MIN.)
24" (MIN.)
24" (MIN.)

11 FRENCH DRAIN
NOT TO SCALE

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FFD ENTERPRISES MA, INC.

BULLARDS CROSSING

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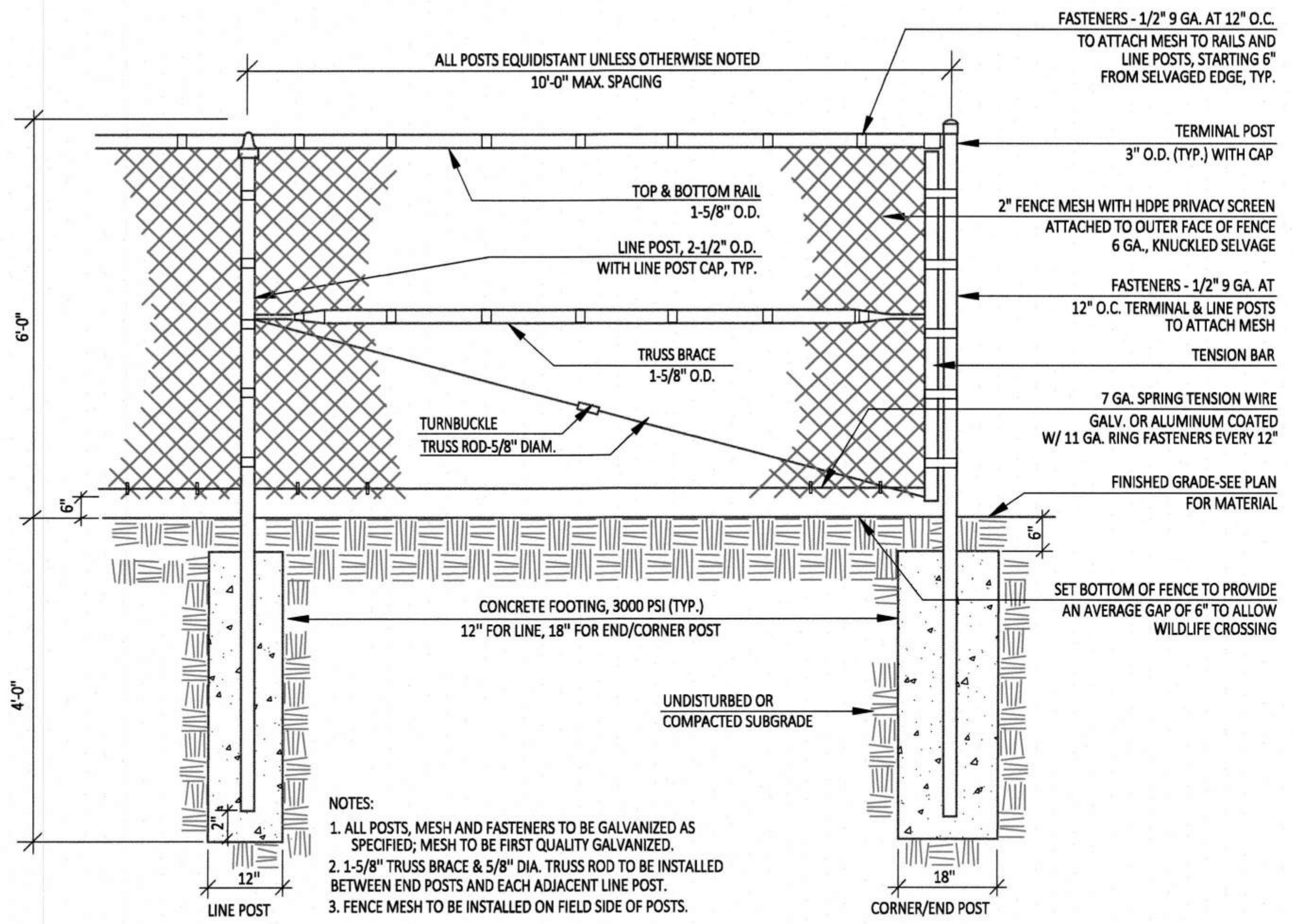
DETAILS

Revisions

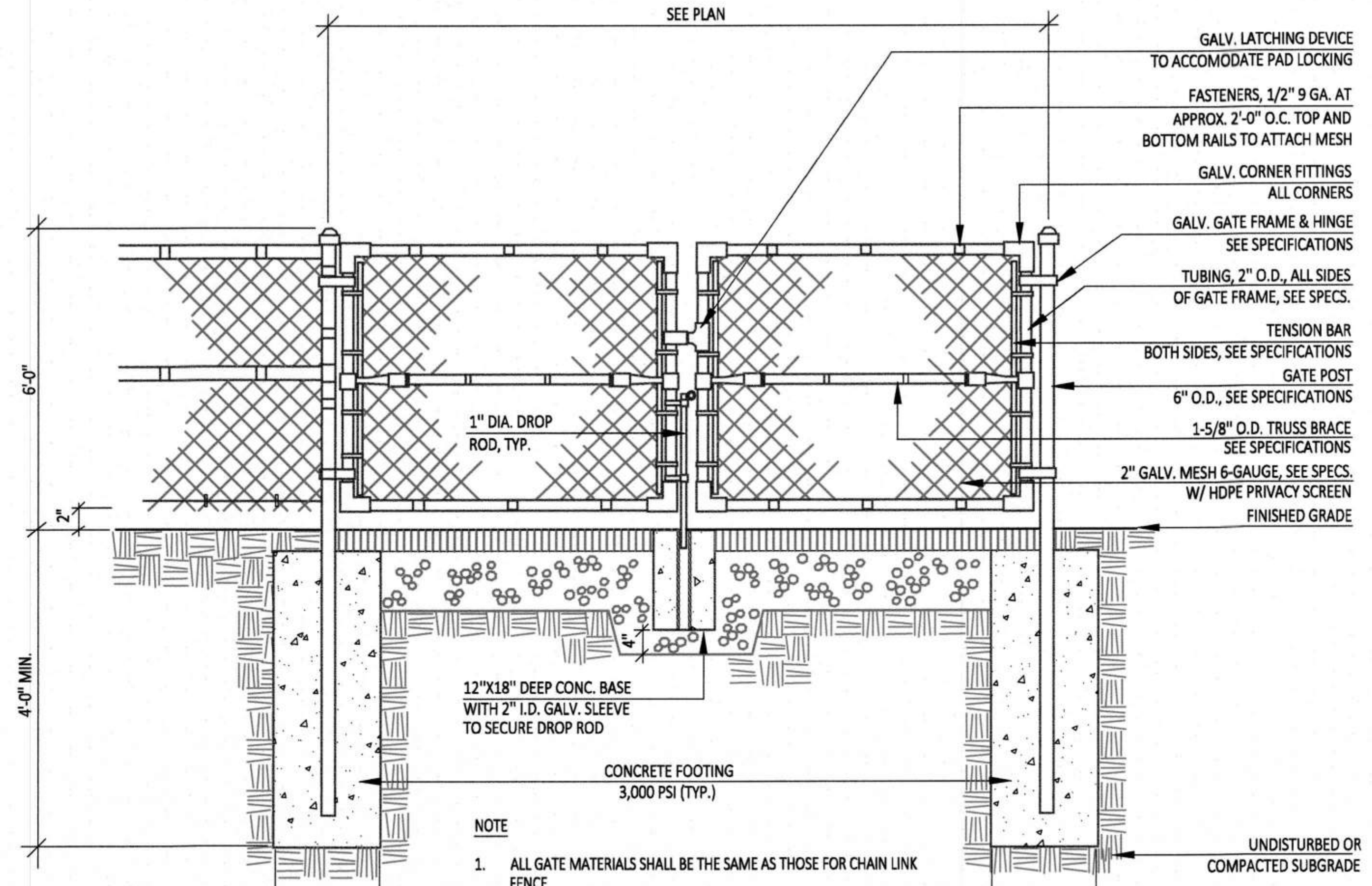
Date: 12-04-2020	Sheet Number
Scale: NOT TO SCALE	LC-501
Drawn By: CS	
Checked By: CC	

F:\HINSDALE - BULLARDS CROSSING IPA\02-DESIGN\DRAWINGS\20.125 LC-500 DETAILS.DWG PLOT DATE: 1/4/2021



1 CHAIN LINK FENCE

NOT TO SCALE

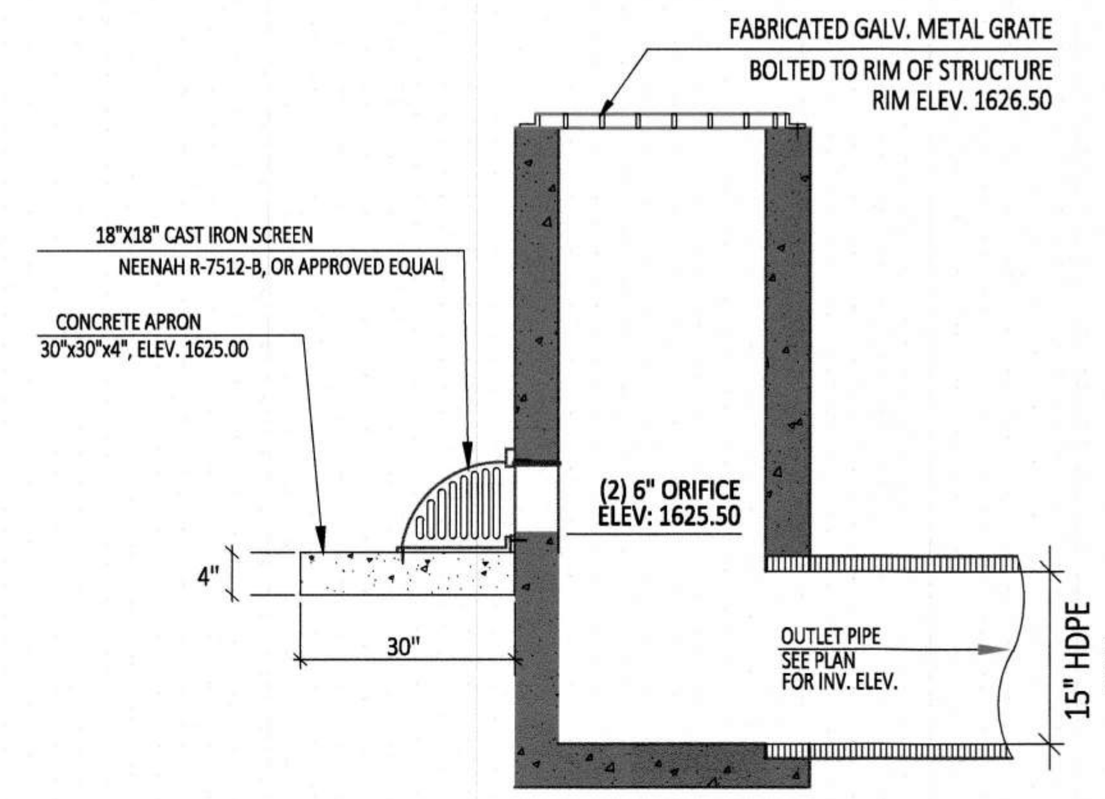


NOTE

1. ALL GATE MATERIALS SHALL BE THE SAME AS THOSE FOR CHAIN LINK FENCE
2. CONTRACTOR TO PROVIDE VANDAL RESISTANT AND RUST RESISTANT, HEAVY DUTY LOCKS WITH KEYS; SUPPLY OWNER WITH ALL KEYS.
3. CONTRACTOR TO PROVIDE KNOX BOXES AT LOCATIONS IDENTIFIED BY THE GARDNER FIRE DEPARTMENT. REQUIREMENTS FOR BOX AS PER FIRE DEPARTMENT REQUIREMENTS.

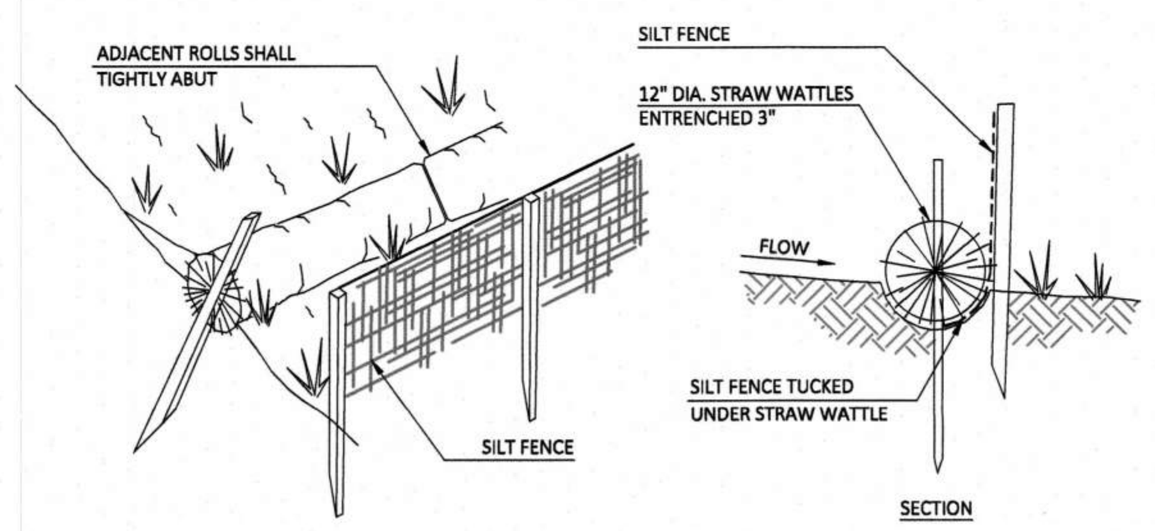
2 CHAIN LINK FENCE GATE

NOT TO SCALE



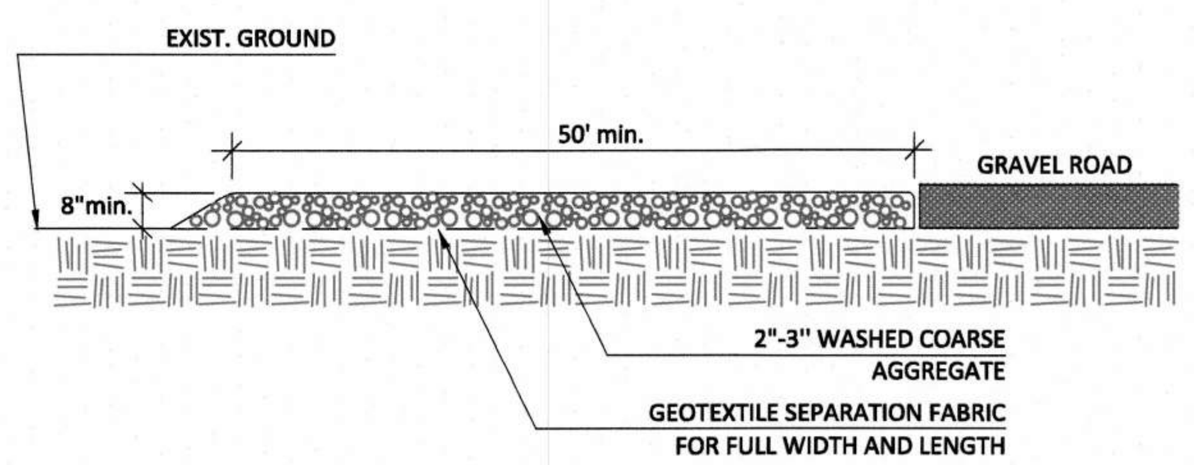
3 OUTLET CONTROL STRUCTURE

NOT TO SCALE



4 EROSION CONTROL BARRIER

NOT TO SCALE

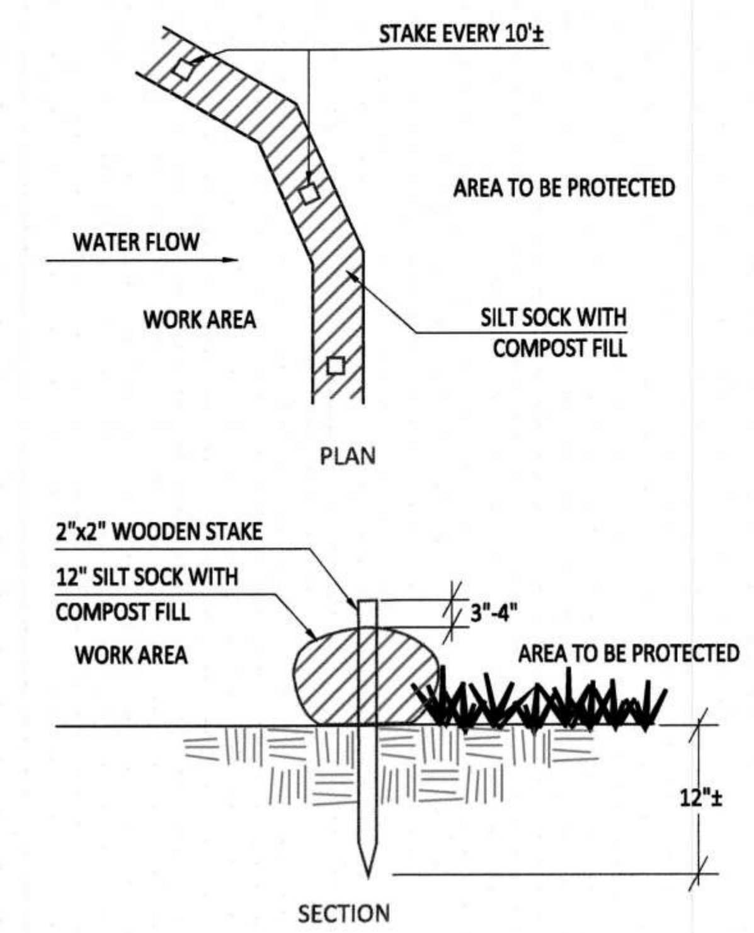


STABILIZED CONSTRUCTION ACCESS NOTES:

1. DIMENSIONS: WIDTH: 25' ± FLARED TO MEET ROADWAY
LENGTH: 50' MIN.
GRADE AND CROSS SLOPE: 2%
2. CLEAR ACCESS OF ALL VEGETATION, ROOTS, AND OTHER OBJECTIONAL MATERIAL.
3. GRAVEL PAD SUBGRADE SHALL BE GRADED SO THAT THE ACCESS WILL NOT DRAIN OFF SITE.
4. MAINTAIN THE GRAVEL PAD IN A CONDITION TO PREVENT MUD, SEDIMENT, ETC. FROM LEAVING THE SITE.
SHOULD MUD/SEDIMENT BE TRACKED OR WASHED INTO THE PUBLIC ROAD IT SHALL BE REMOVED IMMEDIATELY.

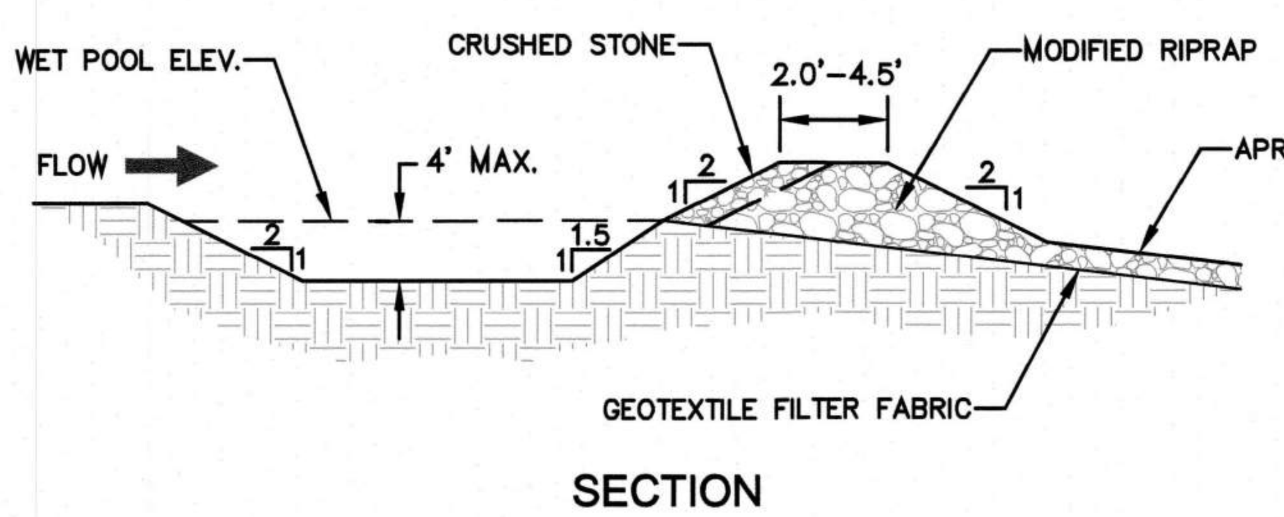
5 STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE



6 SILT SOCK

NOT TO SCALE



SECTION

NOTE:

INSTALL TEMPORARY SEDIMENT TRAP AS REQUIRED.

7 TEMPORARY SEDIMENT BASIN

NOT TO SCALE

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BULLARDS CROSSING

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DETAILS

Revisions

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