

New Residence

489 CAMMY LANE ROAD
McCALL, ID 83638



STORMWATER REPORT

03.26.24 Project #R22104

Section 1
City of McCall Stormwater Application

STORMWATER APPLICATION
City of McCALL

Fill in all information. Submit one copy of signed application and three copies of Stormwater Management Plan/Report to the City Engineer.

1. Project Name: New Residence 489 Cammy Lane
Location: 489 Cammy Lane

2. Owner's Name: Michael Jobes, 2 North Homes
Street: P.O. Box 140798 City: Boise (208) 866-5468 *Jeanette / office*
State: ID. Zip Code: 83714 Phone: (208) 869-5550 *Michael*

3. Project Description: Construction of new residence and auxiliary facilities

- a. Total property area, in acres. 0.335 acres
- b. Proposed impervious surface (asphalt, rooftop, concrete sidewalk, etc.) in square feet 3,983 SF
- c. Describe existing vegetation present on site. The site currently contains a residence and auxiliary structures with landscaping
- d. Start date of construction. June 2022
- e. Estimated length of time to complete improvements. Fall 2022

4. Stormwater Management Plan/Report attached? Yes No

5. Circle the sections of the Stormwater Management Plan/Report Checklist which are applicable to project. (A) (B) (C) D E (F)

6. Party responsible for operation and maintenance of project, including maintenance of temporary and permanent Best Management Practices:

Name	Title	Signature	Date
<u>DeBord Excavation</u>	<u>Contractor</u>	<u>Gary Nelson</u>	<u>5/26/22</u>
<u>P.O. Box 2286</u>	<u>McCall, ID. 83638</u>	<u>Cell (208) 514-8601</u>	<u>same</u>
<u>Address</u>		<u>Daytime Phone</u>	<u>After Hours Phone</u>

Do not write below this line.

This Stormwater Management Plan/Report is:

Approved: _____

Not Approved: _____

Approved, with conditions: _____

By The City of McCALL

Representative	Signature	Title	Date

Section 2
Stormwater Drainage Report

EXECUTIVE SUMMARY

The purpose of this report is to confirm that the storm water management system design for the construction of a new residence, garage and axillary facilities is adequate for the specified design storms per the City of McCall and Idaho Department of Environmental Quality standards.

A. BASIN CHARACTERISTICS

The subject property is located at 489 Cammy Lane, McCall, ID, consisting of new residence and auxiliary facilities construction on lot 33 of the Rio Vista Subdivision No. 1 lying in a portion of Section 8, Township 18 North Range 3 East, McCall, Valley County, Idaho. The limits of construction are approximately 0.336 acres, as shown on the attached construction documents. See Appendix A for a copy of the construction plans.

Currently, the site consisting of 0.336 acres has an existing house and structures. The site currently drains to the southeast, averaging 7.5% slope, toward North Fork Payette River.

Proposed improvements consist of a new house, garage, covered patio along with a paved drive. Stormwater from the site will be contained in the proposed swales. The onsite swales will deposit into a drainage basin to control the stormwater on site.

Summary of the physical conditions onsite as well as for the upstream contributing area

The existing conditions within the property and upstream contributing area include the following:

- The predevelopment area is approximately 19.0% impervious.
- The pre-development flow path drainage length is approximately 125 feet.
- The average slope of the pre-development flow path is approximately 7.5%
- There are known wetlands on the property being the anything below the highwater line of the river.

Post Development land use and associated stormwater improvements are shown within the construction drawings found in the Appendix. Upon completion of the proposed project, the post development land use conditions will be as follows:

- The post development area will be 27.3% impervious
- The post development drainage flow path length will be 100 feet
- The average slope of the primary development flow path is approximately 7.5%
- There are known wetlands on the property being the anything below the highwater line of the river.

Upstream contributing drainage area

- Contributing drainage areas upstream provide a minimal amount of runoff that enters the property due to existing slopes and existing vegetation. Any offsite runoff naturally flows west of the ROW boundary.

Existing drainage facilities impacted by the proposed development on the site and downstream of the proposed development.

There are existing culverts under approaches that will be affected by the proposed development. These existing culverts would be removed and replaced along with the project.

B. Erosion and Sediment Control

Description of existing site prior to activity

- A. Total property area = 0.335 acres (14,587 SF)
- B. Road areas = 0.036 acres (1,554 SF)
- C. Structure areas = 0.028 acres (1,211 SF)
- D. Open space = 0.27 acres (11,822 SF)
- E. Off-site runoff currently is minimal on the project site. runoff naturally flows to the southeast boundary toward the North Fork Payette River.

Description of proposed land improvement activity

- A. Total Development area = 0.335 acres (14,587 SF)
- B. Total roof area (House, Garage, Patio) = 0.081 (3,536 SF)
- C. Road areas = 0.029 acres (1,278 SF)
- D. Open space = 0.224 acres (9,773 SF)
- E. Proposed site improvements will allow for onsite runoff to flow toward the historic drainage of the site and allow retention to meet stormwater requirements. The proposed swales will lead to two detention basins having a base surface of 90 sf with 3:1 side slopes with a minimum 1' depth below edge existing ground, and will serve to detain and route onsite runoff.

A plan which demonstrates the methods for sediment and erosion control. The plan should indicate the size, location and method for installation or implementation of the BMPs.

- A. A stormwater management plan is shown within the site drawings in the appendix.

Details and specifications for the proposed BMPs which describe their installation and maintenance procedures.

The following BMPs that are to be implemented as part of the project's construction are as listed in the Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices for Idaho Cities and Counties:

- Timing of construction is critical to reduce erosion potential. Schedule and sequence construction work and erosion control applications so that they occur under optimal conditions that is, during periods when the potential for erosion is lowest, such as dry weather (BMP 36).

- Protection of existing vegetation is prescribed for all areas outside of the grading and construction limits. If possible, existing weeds should be maintained to provide a vegetated buffer to filter runoff during construction (BMP 38).
- Establish clearing limits using standard construction fencing/staking or other means to help identify areas where construction activities (equipment, storage of materials, etc.) and existing vegetation can be preserved (BMP 39).
- Swales shall be constructed to prevent runoff from flowing onto adjoining properties where indicated. These swales are intended to convey water to the shallow detention basins. Construction of the proposed vegetated swales on the property are intended to help infiltrate runoff generated from the construction of the proposed site improvements and prevent runoff flow onto adjoining properties (BMP 9).

- Stabilize Construction Entrance/Exit, a stabilized construction access is defined point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles. (BMP 41).
- Use good housekeeping practices, where applicable, during all aspects of the construction project.
 - BMP 43 Dust Control
 - BMP 44 Stockpile Management
 - BMP 46 Spill Prevention and Control
 - BMP 47 Vehicle/Equipment Washing and Maintenance
 - BMP 49 Concrete Waste Management
 - BMP 50 Sanitary/Septic Waste Management
- Revegetate and stabilization of all disturbed project areas shall be in accordance with the projects landscape design to prevent sediment transport after construction is completed. If a landscape design/plan is not available, disturbed areas shall be revegetated with a grass mixture native to the area.
 - BMP 52 Mulching
 - BMP 53 Geotextile
 - BMP 54 Matting
 - BMP 55 Soil Binders
 - BMP 31 Topsoiling
 - BMP 32 Seeding
 - BMP 32 Sodding
 - BMP 32 Planting
- Install fiber rolls and/or silt fence along property lines and south side of the property at edge of construction limits to prevent sediment and from leaving the site and filter runoff. Fiber rolls may be used in place of silt fence where determined appropriate. Fiber rolls/silt fence shall be used at the contractor's discretion if unforeseen stormwater runoff and erosion takes place at the proposed construction site.
 - BMP 64 Fiber Rolls
 - BMP 65 Silt Fence

A sequence and schedule of construction activities, including when erosion and sediment control devices and practices will be implemented. The sequence and schedule must include a timetable for project finish and a strategy for long term site stabilization and removal of temporary BMP's.

Temporary and permanent BMPs described above will be constructed as shown within the appendix, Stormwater Managements Plan and using guidance from the Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices for Idaho Cities and Counties and the City of McCall's Drainage Management Guidelines (DMGs) Chapters III and IV).

- Fiber rolls and/or silt fence shall be installed prior to the start of any project construction or earth disturbance and should remain in place until all disturbed/exposed areas have been revegetated or stabilized.
- Establish all clearing/construction limits with construction fencing or silt fence to protect on-site vegetation and all trees not identified for removal.
- Final stabilization and grading associated with the project shall take place once construction activities are nearing completion and when significant erosion impacts associated with the proposed improvements can be minimized.
- The project's construction timeline is June 2022 for the start of construction with final completion by fall 2022. The owner and contractor will be responsible for long term stabilization and maintenance of the newly vegetated areas.

C. CONVEYANCE SYSTEM

Conveyance system calculations were done to ensure swales could handle stormwater of improved area. Calculations are shown in the appendix.

D. FIRST FLUSH TREATMENT

First Flush Treatment is not required for the project as the proposed impervious surface is less than 5,000 SF and total development area is less than two acres. However, the proposed detention basins and the revegetated/landscaped areas around the proposed residence and garage are intended to promote filtration and infiltration of any excess runoff.

E. PERMANENET BMP'S

Permanent BMP's for the project includes the following:

- The vegetative swale will provide filtration of stormwater both runoff onsite and offsite.
- Native and re-planted vegetation will provide filtration of stormwater around the proposed residence and garage areas.
- Landscaping and re-vegetation of all disturbed areas, providing nutrient uptake and natural filtration.

F. OPERATION AND MAINTENANCE

During construction, operation and maintenance of the Stormwater Management Plan will be the responsibility of the associated Contractor(s). This plan should be implemented in accordance with the Idaho Department of Environmental Quality's Catalog of Stormwater Best Management Practices for Idaho Cities and Counties and the City of McCall DMGs. All erosion and sediment controls including stormwater treatment facilities shall be inspected weekly during construction. Additional inspections should be completed in anticipation of, and immediately following event-based runoff events (spring snow melt/significant precipitation events). Construction areas with excess sediment build-up around the fiber rolls and/or silt fence should be cleaned at the time of inspections.

Revegetated areas should be monitored for successful vegetation generation. Areas that remain exposed and/or may become eroded shall be stabilized immediately with mulch and/or straw blankets.

Adjustments to the stormwater management plan should be made by the contractor in the event that excessive erosion continues to occur at the site during construction. After construction of the site improvements, upon final stabilization of the site and acceptance by the Owner, the Owner will assume responsibility for the operation and maintenance of the stormwater BMPs.

Section 3
Stormwater Calculations

G. PEAK FLOW

The proposed storm drainage conveyance facilities are sized to provide the necessary capacity to convey the design storm, as required. The following steps were taken to design the storm conveyance facilities.

1. Calculate the individual drainage basin areas (A), the Runoff Coefficient (C) and Time of Concentration (Tc) values for the developed basins. Combine basins, as appropriate, to determine flow at specific Design Points.
2. Determine the peak flow for each basin and Design Point using the Rational Equation ($Q=CIA$), utilizing the Rainfall Intensity (I) from the appropriate Intensity-Duration-Frequency curves based on the Tc value.
3. Verify capacity of the permeable pavers and other storm water conveyance facilities to accommodate the peak flows.

The proposed storm drainage system has been sized to accommodate first flush storm volume. All facilities have been verified to adequately pass the peak flow and convey the stormwater to a facility for disposal by infiltration and off-site discharge at below pre-development conditions. See Appendix for detailed calculations.

H. DESIGN STORM RETENTION VOLUME

The proposed storm drainage retention facilities are sized to provide the necessary capacity to store the 2-year storm event, to provide treatment for the first flush. The following steps were taken to design the storm drain facility.

1. Calculate the individual drainage basin areas (A) and estimate the Runoff Coefficient (C) for the developed basins. Combine basins, as appropriate, to determine volume at specific Design Points.
2. Determine the Rainfall Intensity (I) from the appropriate Intensity-Duration-Frequency curves based on the design storm event and storm duration (T) of one hour.
3. Verify capacity of facilities for design volume and maximum drain time.

I. 2 YEAR RETENTION

The proposed drainage facilities have been designed to adequately detain and dispose of the first flush 2-year design storm event. All retention areas are vegetated swales that are designed to allow infiltration.

J. PRE-DEVELOPMENT DRAINAGE BASIN

Using the rational method to calculate the pre-development runoff in the area impacted by the proposed road, we obtain 0.44 cfs

$$C = (((1211+1554)*1.0)+(11822*0.5))/14587 = 0.59$$

$$A = 0.335$$

$$T_c = 5$$

$$I_{10} = 2.25$$

$$Q = CIA = 0.44 \text{ cfs}$$

$$i = 10\text{-year storm with } T_c = 60 \text{ min} = 0.65 \text{ inch per hour}$$

$$V_{10\text{-pre}} = Ci (T_c=60)Ax3600 = 463 \text{ cf}$$

K. POST DEVELOPMENT DRAINAGE BASIN

For the Post-development analysis, the drainage patterns for the proposed site can be connected to one (1) drainage basins as shown in Appendix. The selected runoff coefficients are a composite of paved surface and Buildings (1.0) and lawns (0.5).

The proposed improvements will drain along the natural flow of water toward the shallow detention basins for storage.

Using the rational method to calculate the post-development runoff for drainage basin A, we obtain 0.51 cfs

$$C = (((3536+1278)*1.0)+(9773*0.5))/14587 = 0.67$$

$$A = 0.335$$

$$T_c = 5$$

$$I_{10} = 2.25$$

$$Q = CIA = 0.51 \text{ cfs}$$

$$i = 2\text{-year storm with } T_c = 5 \text{ min} = 1.2 \text{ inch per hour}$$

$$Q = CiA = 0.27 \text{ cfs}$$

$$i = 2\text{-year storm with } T_c = 60 \text{ min} = 0.42 \text{ inch per hour}$$

$$V_{2\text{ post}} = Ci (T_c=60)Ax3600 = 339 \text{ cf}$$

$$i = 10\text{-year storm with } T_c = 60 \text{ min} = 0.65 \text{ inch per hour}$$

$$V_{10\text{-post}} = Ci (T_c=60)Ax3600 = 525 \text{ cf}$$

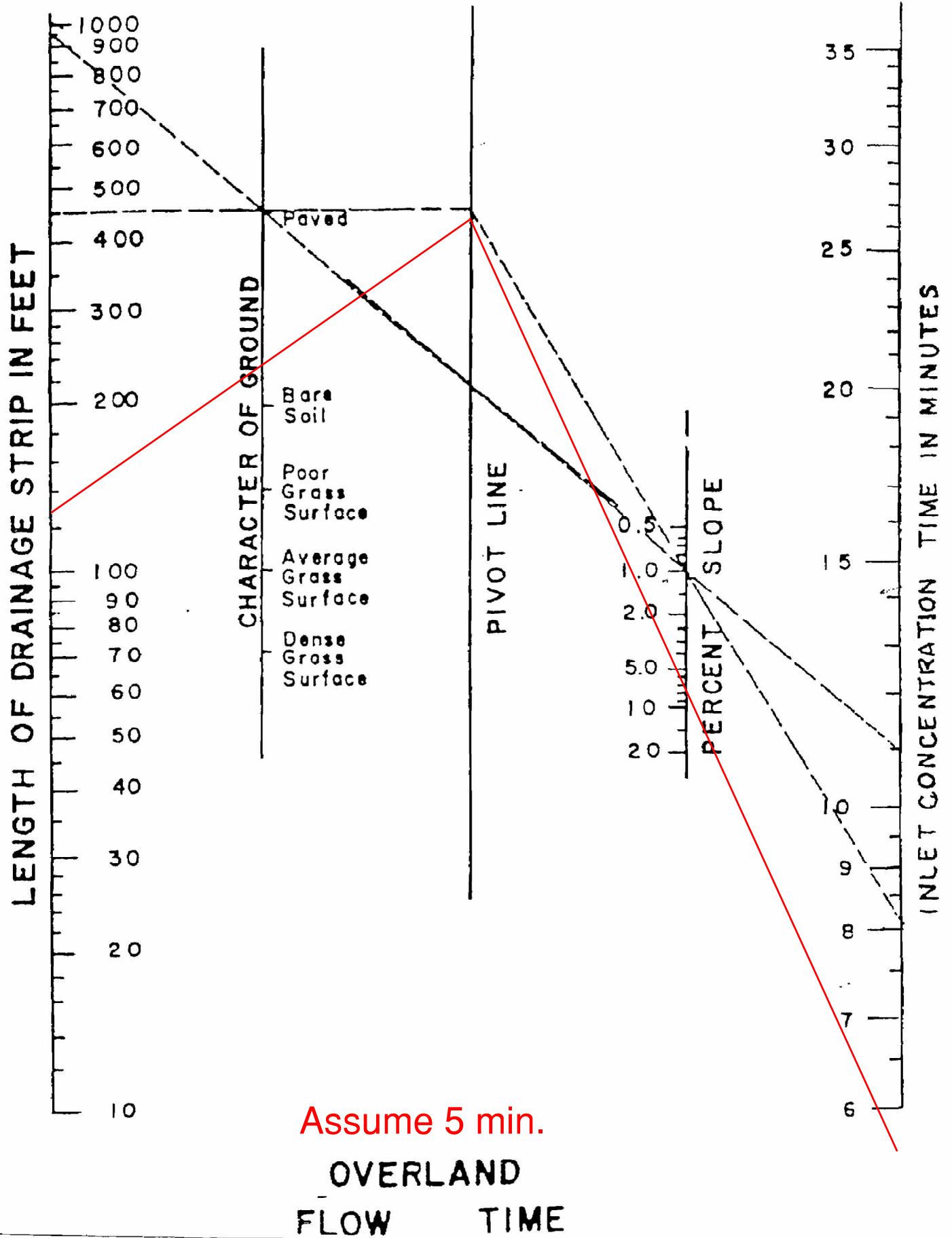
The volume provided by the proposed 90'x 2' swale equates to 470 cf of storage. This will adequately store the 2 year post storm for treatment.

$$V_{10\text{-post}} - V_{10\text{-pre}} = 525 - 463 = 62 \text{ cf}$$

Note: Hydrograph reports available upon request.

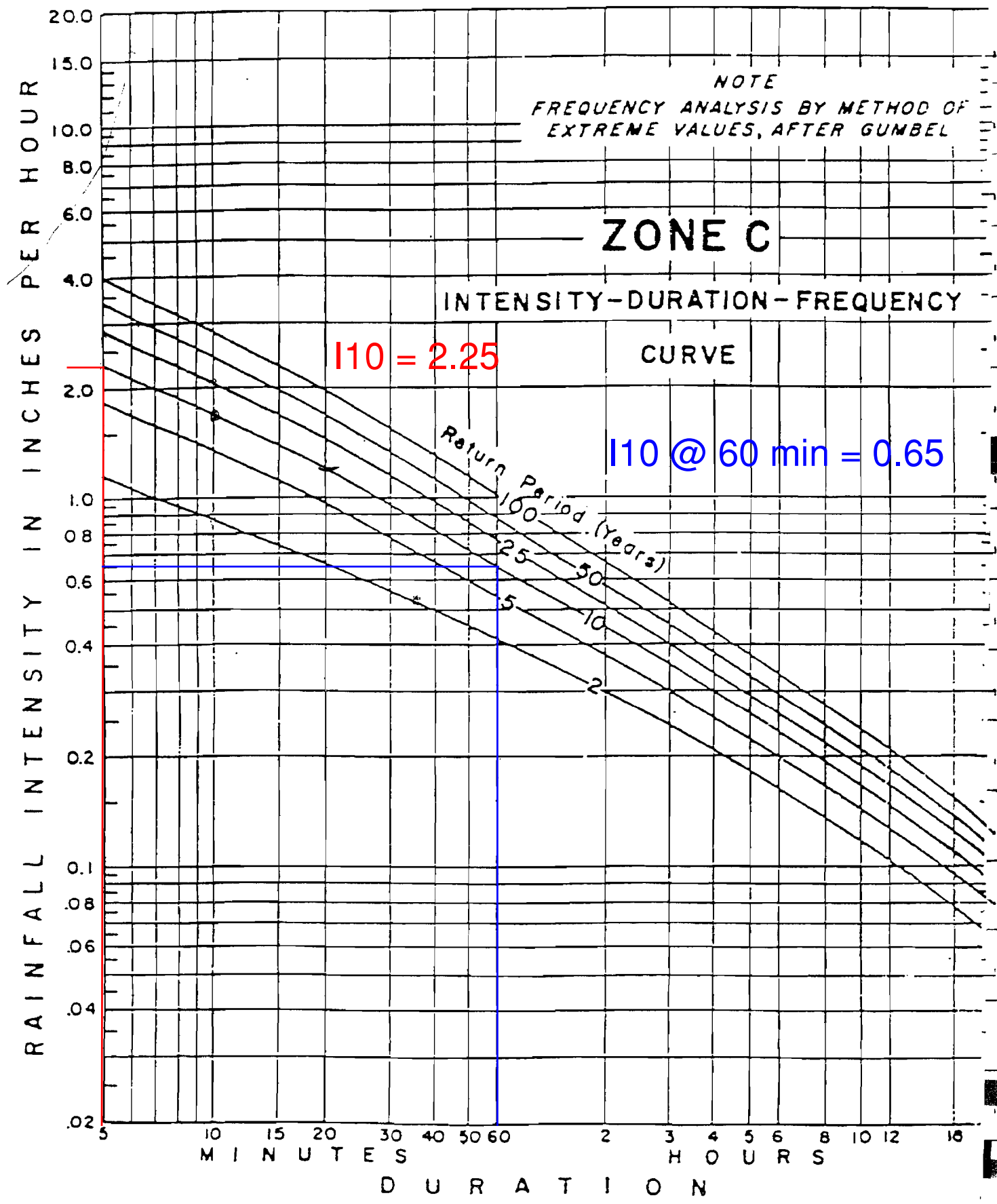
Pre-Development

FIGURE II-2



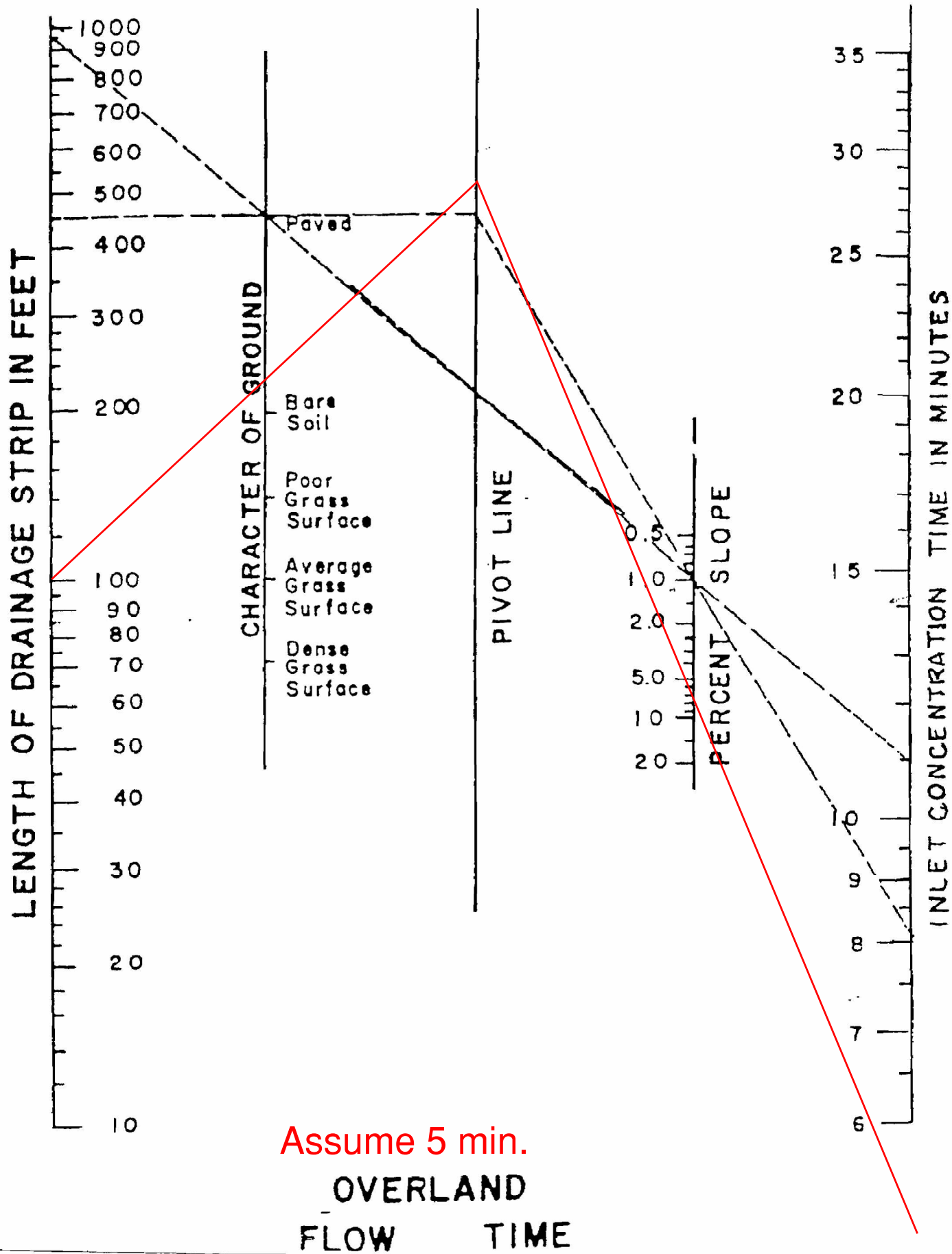
Pre-Development

FIGURE II-1



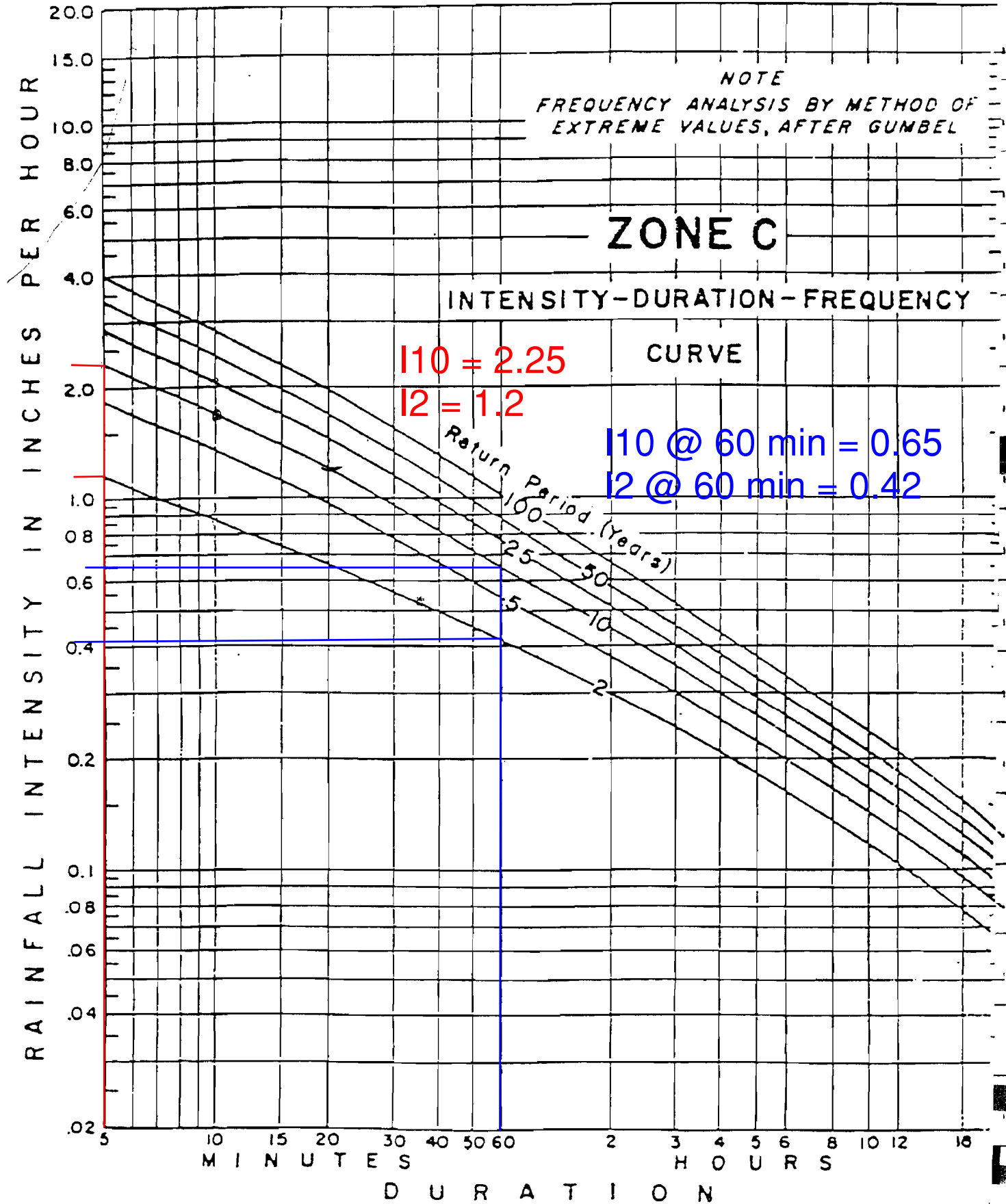
Post-Development

FIGURE II-2



Post-Development

FIGURE II-1



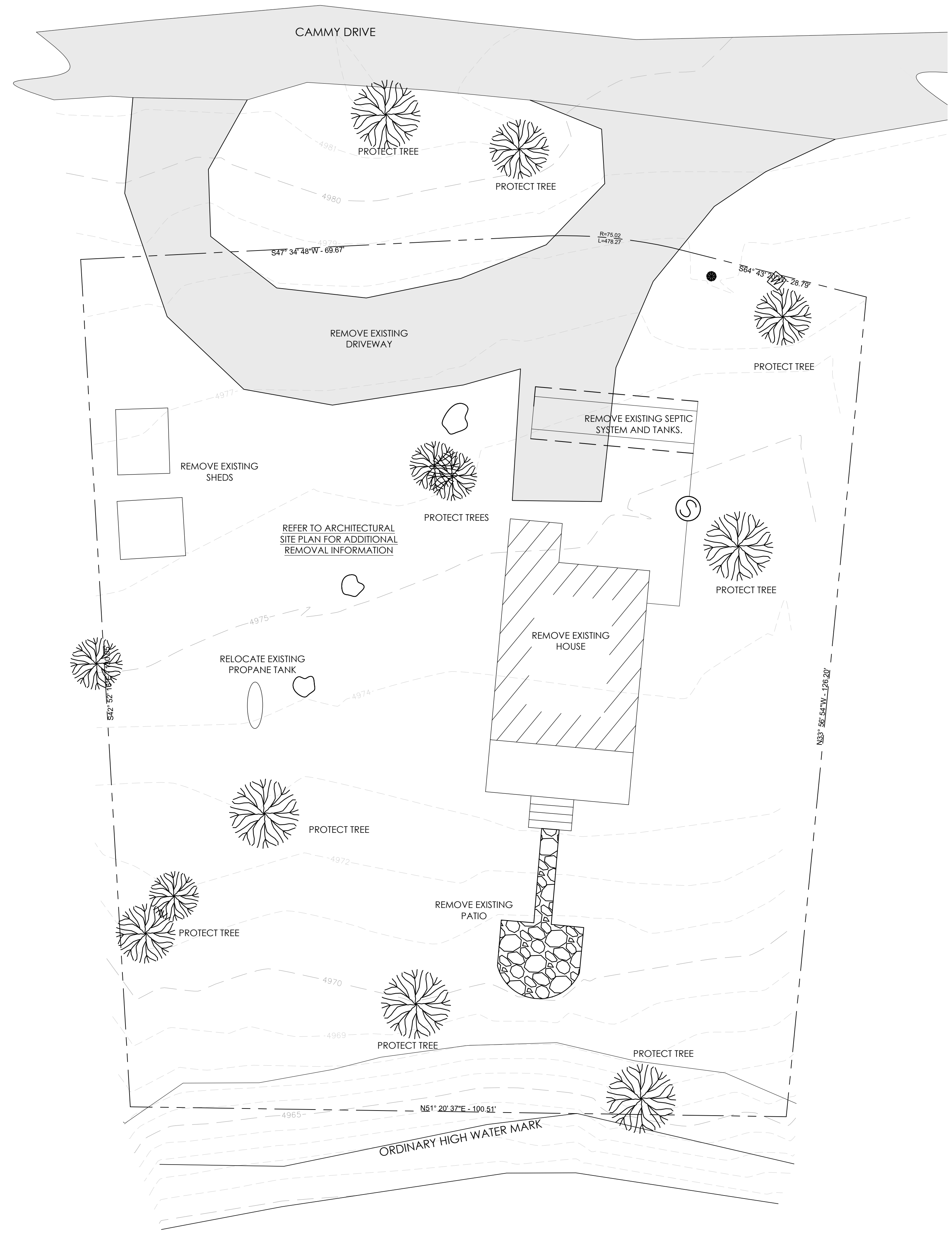
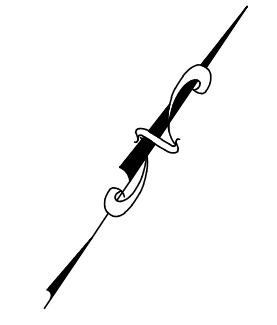
Appendix A
Site Drawings



Graphic Scale:

Attention is Drawn to the Fact That Drawing Scales May be Altered During Reproduction Processes. Scales Shown Hereon are Based on a Full Scale Sheet Size of 24" x 36".

Scale: 1" = 10'



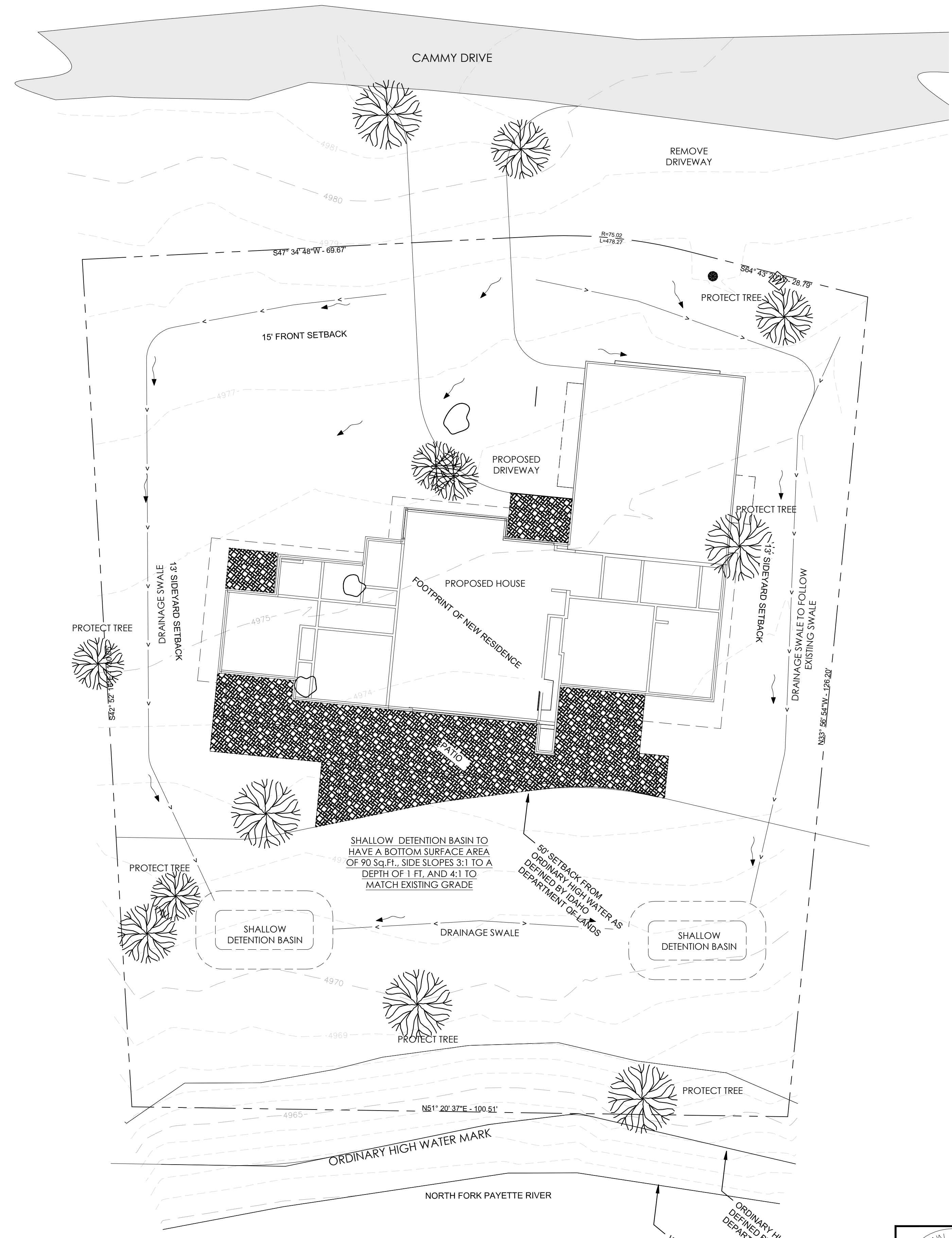
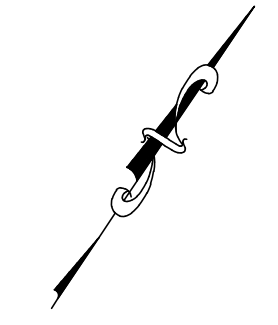
EXISTING CONDITIONS & DEMOLITION PLAN



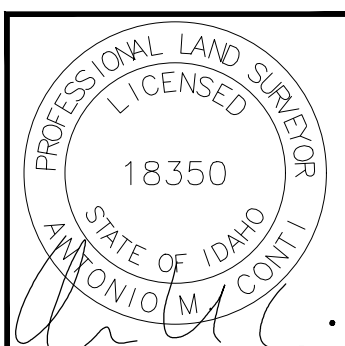
Graphic Scale:

Attention is Drawn to the Fact That Drawing Scales May be Altered During Reproduction Processes. Scales Shown Hereon are Based on a Full Scale Sheet Size of 24" x 36".

Scale: 1" = 10'



DRAINAGE PLAN



FERNAND RESIDENCE
489 CAMMY DRIVE
 MCCALL, IDAHO

DRAWN BY: AMC
 CHECKED BY: AA

DATE: 03/25/2024

REVISIONS	
#	DATE
▲	--/--
#	--/--
#	--/--

Project No. R22104

CIVIL PLANS

C1.0