

# STORMWATER MANAGEMENT PLAN

FOR

## Helping Hands Healing Hearts Site Design

Schweitzer Plaza Sub, Block 2, Lot 8

PONDERAY, IDAHO

July 29, 2021

**PROJECT LOCATION:** The project location is legally described as Lot 8 of Block 2 of the Schweitzer Plaza Subdivision located in Section 11, Township 57 North, Range 2 West, Boise Meridian, Bonner County, Idaho.

**PROJECT DESCRIPTION:** To be permitted to provide a “Good Samaritan Inn” to serve as temporary housing at the project location as described above. Site improvements consist of a new asphalt parking lot, concrete sidewalk, 3-story main building with a 5,600 SF footprint (16,800 total floor plan), a 2,025 SF outbuilding to serve as an activity/training center, a small shed, garden, playground, and new water and sewer service utilities.

**SOIL TYPE/SITE CHARACTERISTICS:** The Soil Conservation Service’s Soil Survey of the Bonner County Area lists soils in this area as Odenson Silt Loam type. This soil is evident on site with poorly draining soils. With mild slopes on site and poorly draining soils, the site shows no evident signs of slippage. The surrounding parcels appear to be consistent with this lot.

**STORMWATER CRITERIA:** City of Ponderay regulations state that stormwater not leave any site faster than the pre-development peak flow rate for a 25-year storm event. The first 0.5 inches of runoff from new impermeable surfaces must also be treated. Development of the property will continue to route runoff as it has historically. The attached Site/Stormwater Management plan shows the relationship of the new impervious surfaces to the stormwater features.

**EROSION/SEDIMENTATION:** Temporary erosion and sedimentation control will be accomplished through the use of silt fencing constructed and maintained before the point of discharge as described on the plans. All barriers will be installed prior to construction, placed perpendicular to the line of flow and inspected and maintained by the contractor until vegetation has been reestablished and the stormwater system is in place. All disturbed areas will be vegetated or improved according to the plans.

**OPERATION AND MAINTENANCE PLAN:** To keep erosion to a minimum, areas to be vegetated will be seeded and mulched upon final grading. Newly planted areas will be inspected after large storms for erosion until well established. Eroded areas will be replaced.

**Inspection schedule and timing:** At a minimum, inspection is to take place once every 7 days, within 24 hours of an anticipated storm event of 0.5 inches or greater, and within 24 hours of the end of a storm event of 0.5 inches or greater. The owner, Helping Hands Healing Hearts Board of Directors, will be responsible for maintenance of the system.

**CONSTRUCTION SCHEDULE:** Erosion control measures are to be installed in September 2021 followed by development of the GIAs, the installation of utilities, and road/parking improvements, and structures. The main building will be installed prior to the outbuildings and additional improvements.

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**STORMWATER SYSTEM CALCULATIONS SUMMARY**

The Rational Method with a 25-year return period was used for calculations in conjunction with the ITD intensity-duration-frequency curve. See attached calculations for additional information.

Pre-Development Peak Flow = 0.54 cfs

Post-Development Requirements

Peak Flow = 1.76 cfs

Difference in Peak Flows = 1.76 cfs – 0.54 cfs = 1.23 cfs

Required Detention = 1.23 cfs X 5 min X 60 sec/min = 368 CF

Required Volume to be treated (1<sup>st</sup> 0.5in) = 39,329 SF X 0.5 in X 1/12 in/ft = 1,639 CF > 368 CF

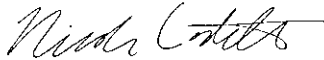
Detention of grassed infiltration areas #1 and #2:

1,505 LF + 189 CF= 1,694 CF

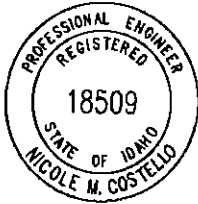
Total Proposed Volume = 1,694 CF

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The attached plan and this document were prepared by the undersigned, whose seal as a licensed professional engineer, is affixed below.

CLEARWATER ENGINEERING



Nicole M. Costello, P.E.  
Project Engineer  
P.O. Box 251; Sandpoint, Idaho 83864



7/27/2021

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HHHH - Site Development  
 SEC. 11, T57N, R2W, SCHWEITZER PLAZA, BLK 2, LOT 8  
 PONDERAY, ID

**STORMWATER ANALYSIS**  
 Rational Method for Runoff Calculations  
Pre-Development

Water Quantity Storm 25 year -----

Surface Type	Area A (ft <sup>2</sup> )	Area A (Acres)	Runoff Coefficient C
Unimproved Area	91,476	2.100	0.15
Gravel Drive	-	0.000	0.85
Roofs + Concrete + Asphalt	-	0.000	0.95
Totals	91,476	2.100	

Weighted Runoff Coefficient, C = 0.150

i = 1.7 in/hr

Peak Runoff,  $Q_p = CiA$   $Q_p = 0.54$  cfs

Post-Development

Water Quantity Storm 25 year -----

Surface Type	Area A (ft <sup>2</sup> )	Area A (Acres)	Runoff Coefficient C
Unimproved Area	52,147	1.197	0.15
Gravel Drive	-	0.000	0.85
Roofs + Concrete + Asphalt	39,329	0.903	0.95
Totals	91,476	2.100	

Weighted Runoff Coefficient, C = 0.494

i = 1.7 in/hr

Peak Runoff,  $Q_p = CiA$   $Q_p = 1.76$  cfs

Difference in  $Q_p = 1.23$  cfs

Volume = 368 cf Assumes 5 min. T.O.C.

Increase in impervious surfaces = 39,329 sf

Required Treatment Volume (1st 1/2") = 1,639 cf

HHHH - Site Development  
 SEC. 11, T57N, R2W, SCHWEITZER PLAZA, BLK 2, LOT 8  
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**PARKING REQUIREMENT CALCULATIONS**

Multi-family residential: 1 space per 600 sf

Office area: 1 space per 200 sf

Industrial/Storage area: 1 space per 1,000 sf

Main Building Space	Area (ft <sup>2</sup> )	Applicable Requirement	Parking Required
Single Family Units	9,792	1 per 600	16.3
Director Apartments	1,080	1 per 600	1.8
Bathrooms	3,696	1 per 600	6.2
Office	540	1 per 200	2.7
Storage	540	1 per 1,000	0.5
Common Area/Training Room	1,152	1 per 600	1.9
Totals	16,800		29.4

Additional Outbuilding Space	Area (ft <sup>2</sup> )	Applicable Requirement	Parking Required
Storage	288	1 per 1,000	0.3
Activity/Office Building	2,025	1 per 200	10.1
Totals	2,313		10.4

**Overall Parking Requirement: 40**

**STORMWATER NOTES:**

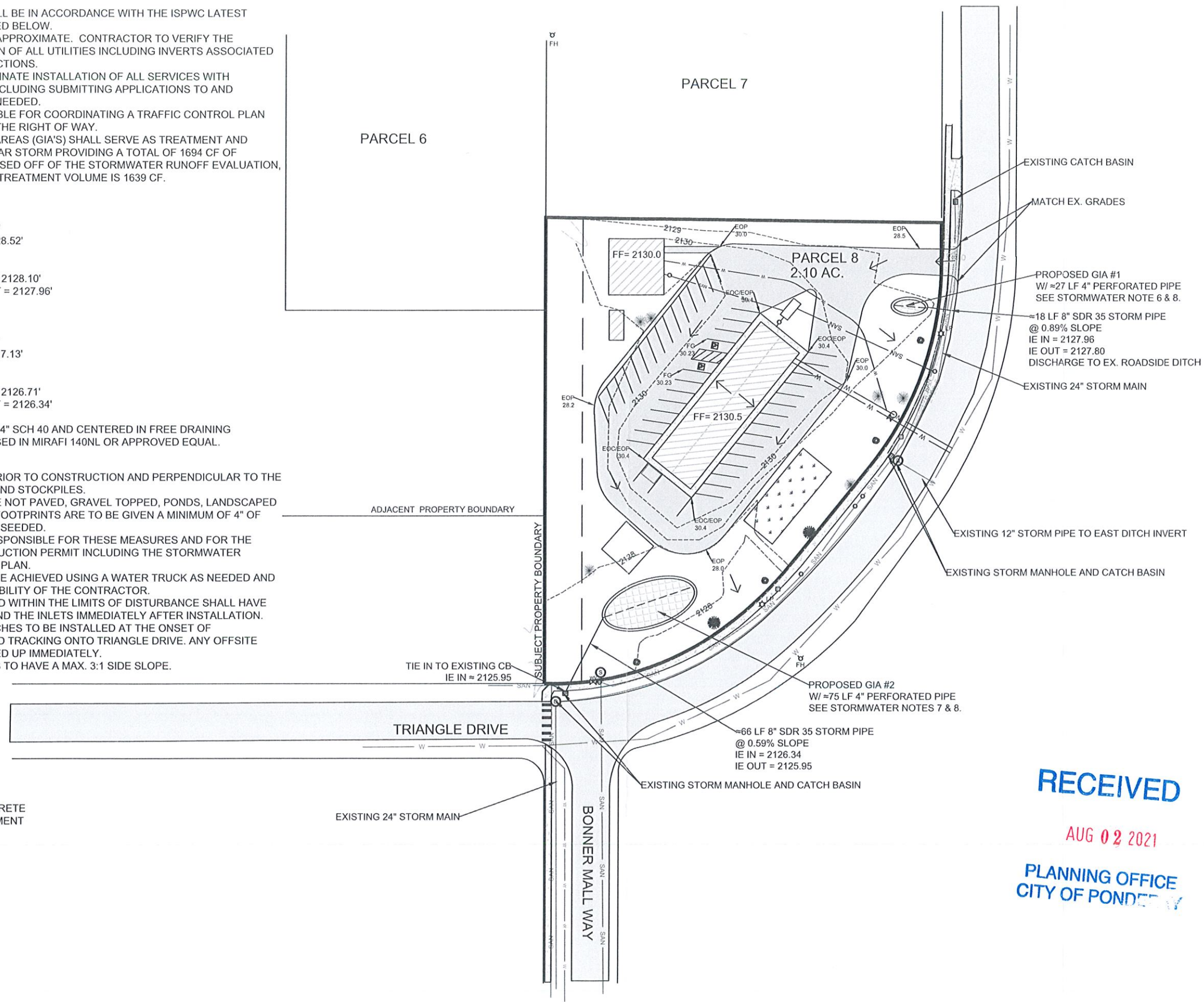
- ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE ISPWC LATEST EDITION EXCEPT AS NOTED BELOW.
- UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR TO VERIFY THE LOCATION AND ELEVATION OF ALL UTILITIES INCLUDING INVERTS ASSOCIATED WITH PROPOSED CONNECTIONS.
- CONTRACTOR TO COORDINATE INSTALLATION OF ALL SERVICES WITH ASSOCIATED UTILITIES INCLUDING SUBMITTING APPLICATIONS TO AND ACQUIRING PERMITS AS NEEDED.
- CONTRACTOR RESPONSIBLE FOR COORDINATING A TRAFFIC CONTROL PLAN WHEN WORKING WITHIN THE RIGHT OF WAY.
- GRASSED INFILTRATION AREAS (GIA'S) SHALL SERVE AS TREATMENT AND STORAGE FOR THE 25-YEAR STORM PROVIDING A TOTAL OF 1694 CF OF TREATMENT VOLUME. BASED OFF OF THE STORMWATER RUNOFF EVALUATION, THE MINIMUM REQUIRED TREATMENT VOLUME IS 1639 CF.
- GIA #1:  
 TOP ELEVATION = 2129.12'  
 BOTTOM ELEVATION = 2128.52'  
 3:1 SIDE SLOPES  
 VOLUME = 189 CF  
 PERFORATED PIPE IE IN = 2128.10'  
 PERFORATED PIPE IE OUT = 2127.96'
- GIA #2:  
 TOP ELEVATION = 2127.80'  
 BOTTOM ELEVATION = 2127.13'  
 3:1 SIDE SLOPES  
 VOLUME = 1505 CF  
 PERFORATED PIPE IE IN = 2126.71'  
 PERFORATED PIPE IE OUT = 2126.34'
- PERFORATED PIPE TO BE 4" SCH 40 AND CENTERED IN FREE DRAINING AGGREGATE ENCOMPASSED IN MIRAFI 140NL OR APPROVED EQUAL.

**EROSION CONTROL NOTES:**

- INSTALL SILT FENCING PRIOR TO CONSTRUCTION AND PERPENDICULAR TO THE LINE OF FLOW AND AROUND STOCKPILES.
- ALL SURFACES THAT ARE NOT PAVED, GRAVEL TOPPED, PONDS, LANDSCAPED OR WITHIN STRUCTURE FOOTPRINTS ARE TO BE GIVEN A MINIMUM OF 4" OF TOPSOIL AND ARE TO BE SEEDED.
- THE CONTRACTOR IS RESPONSIBLE FOR THESE MEASURES AND FOR THE EPA'S GENERAL CONSTRUCTION PERMIT INCLUDING THE STORMWATER POLLUTION PREVENTION PLAN.
- DUST ABATEMENT WILL BE ACHIEVED USING A WATER TRUCK AS NEEDED AND SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL CULVERTS INSTALLED WITHIN THE LIMITS OF DISTURBANCE SHALL HAVE WATTLES PLACED AROUND THE INLETS IMMEDIATELY AFTER INSTALLATION.
- ROCK CAP FOR APPROACHES TO BE INSTALLED AT THE ONSET OF CONSTRUCTION TO AVOID TRACKING ONTO TRIANGLE DRIVE. ANY OFFSITE TRACKING TO BE CLEANED UP IMMEDIATELY.
- ALL DITCHES AND PONDS TO HAVE A MAX. 3:1 SIDE SLOPE.

**GRADING NOTES:**

- EOC = EDGE OF CONCRETE
- EOP = EDGE OF PAVEMENT
- FG = FINISHED GRADE
- FF = FINISHED FLOOR



REVISION	DATE	BY
CW163	07/29/2021	

**HELPING HANDS HEALING  
 HEARTS SITE DESIGN  
 STORMWATER & GRADING PLAN**

**CLEARWATER ENGINEERING**  
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