

Green Infrastructure Projects

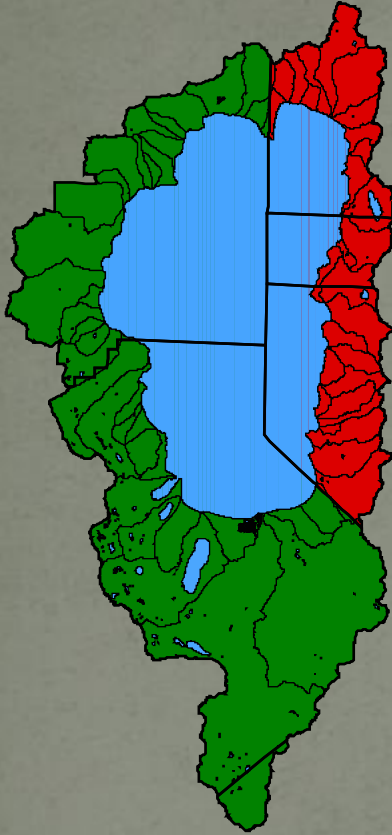
Hybrid BMP Project

Incline Village Green Streets Project



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Nevada Tahoe Conservation District
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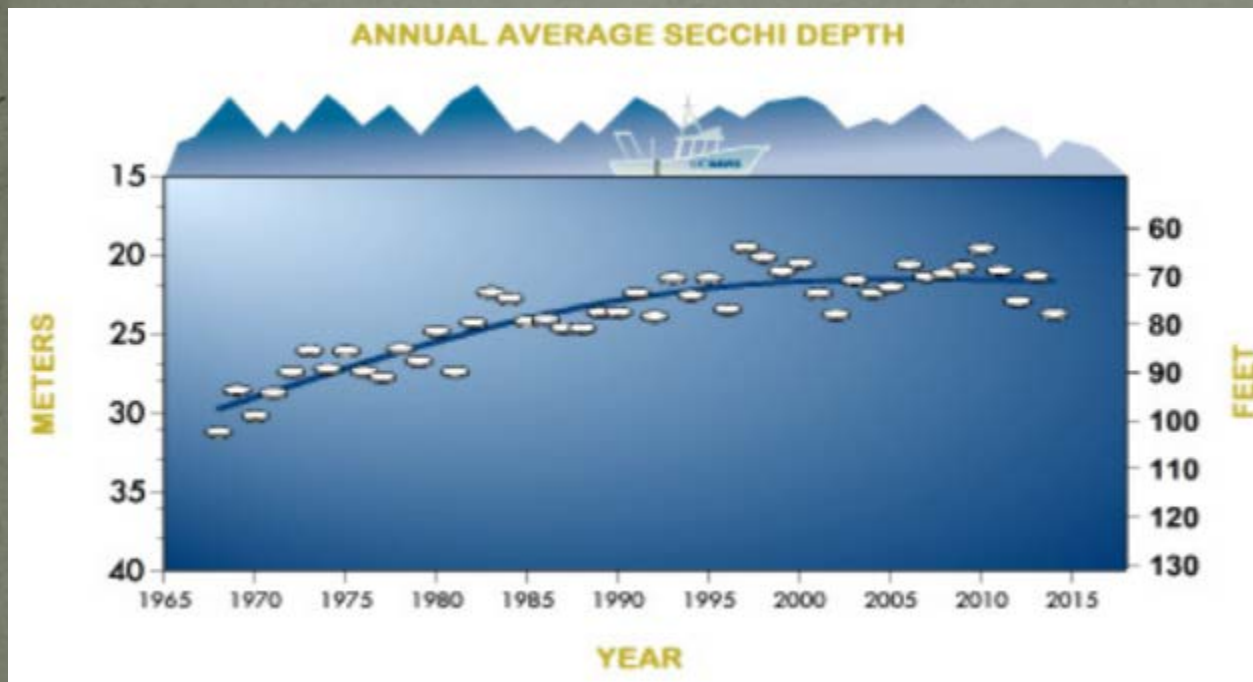
Nevada Tahoe Conservation District



Promote the conservation and improvement of the Lake Tahoe Basin's natural resources by providing leadership, education, and technical assistance to all basin users.

Lake Tahoe TMDL

- Goal: Restore Lake Clarity to 97.4 feet



- Fine sediment, Nitrogen and Phosphorous (mainly from urban areas) are pollutants causing clarity loss

NTCD implemented:

- Hybrid BMP Project
- Washoe County Right-of-Way
- Multiple Funders (\$392,256)
- Pilot Project to implement LID (rain gardens, bioswales, underground infiltration)
- 2 Years Monitoring
- Green Streets Project
- NDOT Right-of-Way
- Multiple Funders (\$183,000)
- Installed 6 rain gardens



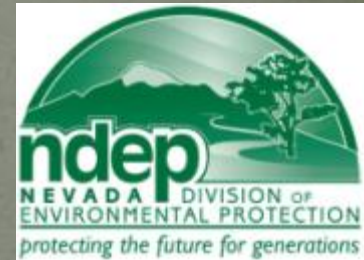
NTCD Roles

1. Obtained grant funding
2. Coordinated partners
3. Performed Design and Engineering
4. Obtained permits
5. Advertised and Awarded Construction Contracts
6. Performed Construction Oversight
7. Led Revegetation Efforts
8. Coordinated Irrigation
9. Monitored



1. Obtained Grant Funding

- Projects funded through:
 - United States Forest Service SNPLMA Grant
 - Nevada Division of Environmental Protection 319(h) Grant
 - Nevada Division of State Lands License Plate Grant
 - Washoe County, Tahoe Regional Planning Agency Water Quality Mitigation Funds
 - Nevada Department of Transportation State Gas Tax Monies

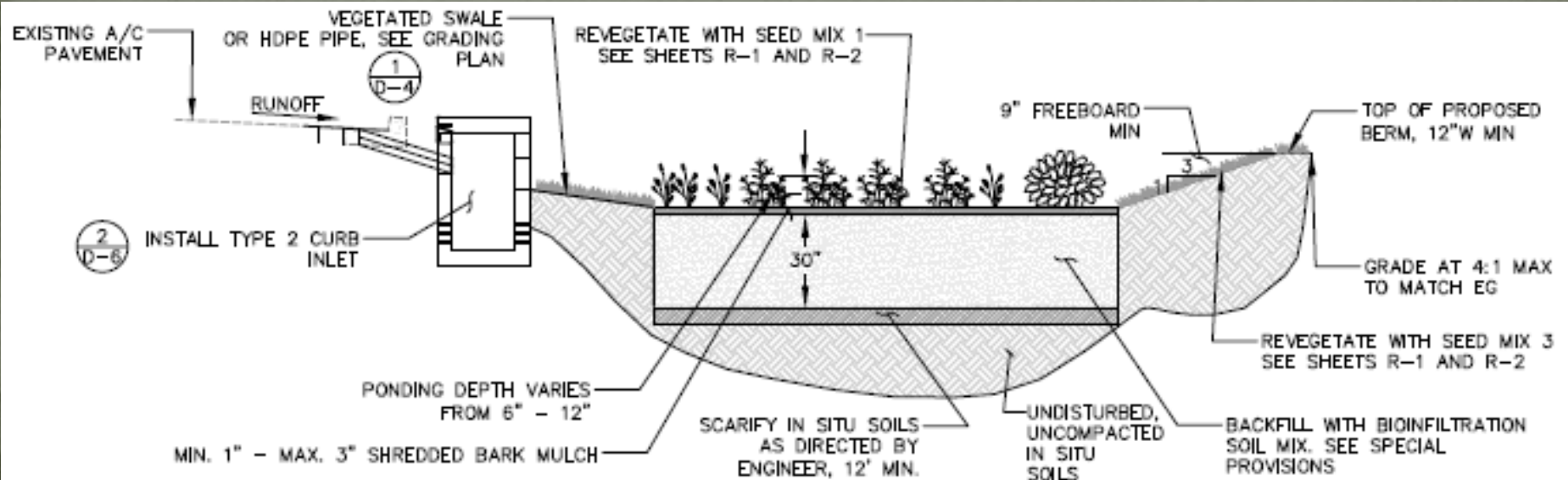


2. Coordinated Partners

- Project Partners:
 - Natural Resources Conservation Services (NRCS)
 - Desert Research Institute (DRI)
 - Washoe County Public Works
 - Washoe County Roads Division
 - NDOT
 - Incline Village General Improvement District (IVGID)
 - Rotary Club of Incline Village

3. Performed Design and Engineering

- NTCD engineer (P.E.) on staff
 - 100% Design Plans
 - Specifications
 - Construction Cost Estimates



4. Obtained Permits

- Permits include:
 - USFS NEPA (Categorical Exclusion)
 - TRPA EIP Permit
 - Washoe County Site Improvement Permit
 - NDOT Encroachment Permit
 - NDSL Encroachment Permit
 - NDEP Permit (Exempt)

5. Advertised and Awarded Construction Contracts

- Advertised Construction Bidding:
 - NTCD staff worked with Washoe County/NDOT to create bid documents
 - Construction estimate < \$100,000 allowed informal bid
 - Bid Docs and 100% Design Packet sent to select contractors
 - Included bid alternate items to ensure bids below \$100K
- Awarded Construction Contract:
 - NTCD Board signed contract

6. Performed Construction Oversight

- Construction Oversight included:
 - Contractor Submittals
 - Coordinating Material Testing
 - Assuring Compliance with plans and specs
 - Photo-documenting Construction Methods
 - Tracking materials quantities
 - Creating Daily Construction Reports



7. Led Revegetation Efforts

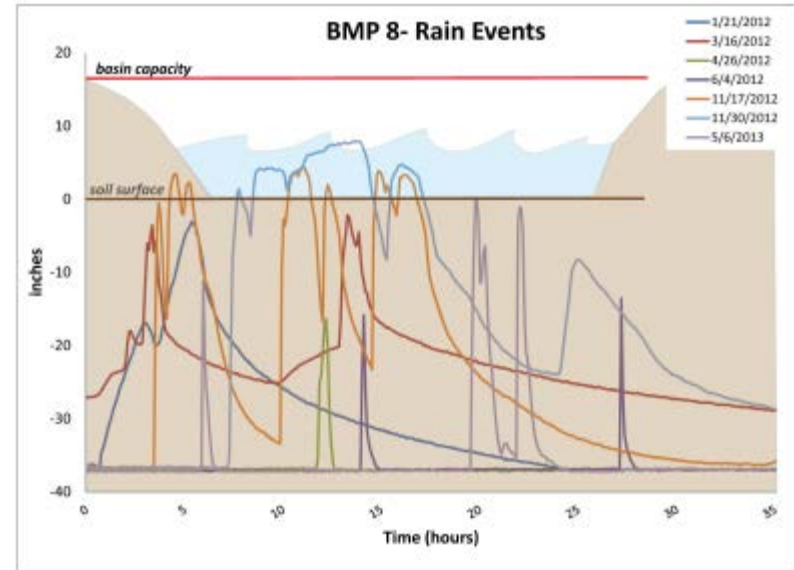
- NTCD performed revegetation to ensure >\$100K
- Created revegetation plan
- Selected plant species for seed mix and containerized
- Revegetation Efforts included:
 - Scarifying disturbed soils
 - Applying seed mix
 - Installing Mulch
 - Installing Erosion Control Blanket
 - Installing Containerized Plant Materials
 - Directing volunteers to plant, seed and mulch

8. Coordinated Irrigation

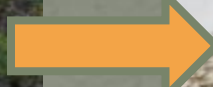
- Irrigation provided by adjacent private homeowners:
 - Entered into MOUs with adjacent homeowners
 - Reimbursed for irrigation water
 - Installed and maintained temp irrigation systems
 - 2 rain gardens receive permanent irrigation
 - Homeowner adopted to match front yard
 - IVGID adopted in park

9. Monitored

- Partnered with Desert Research Institute to monitor:
 - % Vegetation Cover
 - Infiltration Rate
 - Bulk Density
 - Pressure Transducer (stage=runoff volume)
 - Conductivity
 - Turbidity
 - Piezometers in Rain Garden media
 - Flood Tests (fire hydrant)
 - Wash off tests (water truck)
 - Water Quality (grab samples and Autosampler)



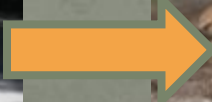
Bio-Swale



Pre-Project

Post-Project

Rain Garden



¿ Questions ?



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