



CAMBRIA COMMUNITY SERVICES DISTRICT

MEETING	TIME & DATE	LOCATION
Resources & Infrastructure Committee	2:00 PM Monday, January 13, 2025	Cambria Veterans' Memorial Hall, 1000 Main Street, Cambria, CA 93428

## AGENDA

### **Regular Resources & Infrastructure Committee Meeting**

**January 13, 2025 2:00 PM**

**In person at:**

**Cambria Veterans' Memorial Hall  
1000 Main Street, Cambria, CA 93428**

**AND via Zoom at:**

**Please click the link to join the webinar: [HERE](#)**

**Webinar: 873 7001 5736**

**Passcode: 575668**

Copies of the staff reports or other documentation relating to each item of business referred to on the agenda are on file in the CCSD Administration Office, available for public inspection during District business hours. The agenda and agenda packets are also available on the CCSD website at <https://www.cambriacsd.org/>. In compliance with the Americans with Disabilities Act, if you need special assistance to participate in this meeting or if you need the agenda or other documents in the agenda packet provided in an alternative format, contact the Confidential Administrative Assistant at 805-927-6223 at least 48 hours before the meeting to ensure that reasonable arrangements can be made. The Confidential Administrative Assistant will answer any questions regarding the agenda.

#### **1. OPENING**

**1.A Call to Order**

**1.B Establishment of Quorum**

**1.C Chair Report**

**1.D Ad Hoc Subcommittee Report(s)**

**1.E Committee Member Communications**

**1.F Utilities Department Manager Report**

#### **2. PUBLIC COMMENT**

Members of the public may now address the Committee on any item of interest within the jurisdiction of the Committee but not on its agenda today. Future agenda items can be suggested at this time. In compliance with the Brown Act, the Committee cannot discuss or act on items not on the agenda. Each speaker has up to three minutes.

#### **3. CONSENT AGENDA**

**3.A Consideration to Approve the November 4, 2024 Regular Meeting Minutes**

**4. REGULAR BUSINESS**

**4.A Discussion and Consideration for a Contract with ASTERRA Satellite Leak Protection Services for Water and Wastewater Departments and Consider Forwarding a Recommendation to the CCSD Board of Directors**

**4.B Receive and Discuss Information Regarding a Proposed Instream Flow Study for Santa Rosa Creek**

**5. FUTURE AGENDA ITEM(S)**

**6. ADJOURN**



## CAMBRIA COMMUNITY SERVICES DISTRICT

### MINUTES OF NOVEMBER 4, 2024, REGULAR RESOURCES & INFRASTRUCTURE COMMITTEE MEETING OF THE CAMBRIA COMMUNITY SERVICES DISTRICT

A regular meeting of the Resources & Infrastructure Committee of the Cambria Community Services District was held at the Cambria Veterans' Memorial Hall, located at 1000 Main Street, Cambria, CA 93428, on Monday, November 4, 2024, at 2:00 PM

#### 1. **OPENING**

##### 1.A **Call to Order**

Chairperson Dean called the meeting to order at 2:00 pm.

##### 1.B **Establishment of Quorum**

A quorum was established.

Committee members present: Karen Dean, James Webb, Steve Siebuhr, Derrik Williams, and Dennis Dudzik.

Committee members absent: Mark Meeks

Staff present: General Manager Matthew McElhenie, Confidential Administrative Assistant Haley Dodson, Utilities Department Manager Jim Green, Program Manager Tristan Reaper, and Water Systems Superintendent Cody Meeks.

Others Present: Board member Harry Farmer (remote), public members Allan Dean, Michelle Millward (remote), and Jeff Wilson (remote)

##### 1.C **Chair Report (Time: 2:01)**

Chairperson Dean reported the following:

- The next R&I committee meeting is December 9. One item of discussion will be who wants to remain on the R&I Committee

##### 1.D **Ad Hoc Subcommittee Report(s) (Time: 2:01)**

None

##### 1.E **Committee Member Communications (Time: 2:02)**

Committee member Webb reported out from the marine sanctuaries' decadal review. Kelp destruction by sea urchins is one of the marine sanctuaries biggest current concerns

### **1.F Utilities Department Manager Report (Time: 2:05)**

Utilities Department Manager Green reported the following:

- **ZLD (Time: 2:05)**

There have been supply chain issues with the ZLD trailer, and the District will not have the opportunity to test the ZLD process this winter; it will likely occur next September or October. Global Water Innovations have provided the analysis of the permeate, which allows the District to finalize its permitting.

- **AMI Water Meters (Time: 2:08).**

District staff continue to install the AMI meters. The District will be releasing an RFP soon to get more assistance with the installations.

- **San Simeon Well #3 (Time: 2:10)**

A Variable Frequency Drive (VFD) was installed on well SS#3 last week. The District is waiting to integrate the VFD with its SCADA system.

- **San Simeon Transmission Lines (Time: 2:12)**

The District is continuing to obtain right of easement and encroachment permits for testing soils along the Caltrans right of way. The District will likely begin construction in April, 2025

- **Skate Park (Time: 2:14)**

The District has completed the funding grant application. Chair Dean asks about timing for completing the project. It is typically a 3-year time frame to complete the project, but the District can ask for an extension up to 5 years.

*Public Comment*

None

### **2. PUBLIC COMMENT (Time: 2:17)**

Committee Chair Dean reports the R&I committee received one comment, but it is not on an item under the jurisdiction of the R&I Committee.

### 3. **CONSENT AGENDA (Time: 2:18)**

#### 3.A **Consideration to Approve the September 30, 2024 Special Meeting Minutes**

Committee member Dudzik points out the second bullet on page 4 should read, “Standing committee members should not request actions from staff” (the word “not” is missing.)

Committee Member Dudzik moved to accept the minutes with the recommended changes

Committee Member Webb seconded the motion.

The motion was approved: 4-Ayes; 0-Nays; 0-Abstain; 1-Absent Meeks

### 4. **REGULAR BUSINESS**

#### 4.A **Receive a Presentation from Asterra Recovery on Satellite- Based Leak Detection Services for Water and Wastewater, Discuss and Consider Forwarding a Recommendation to the Board of Directors to Include Asterra’s Leak Detection Services in the 25/26 FY Budget (Time: 2:19)**

Water Systems Superintendent Meeks introduces the Asterra’s technology for detecting lost water using satellite technology. Mr. Matias Rodriguez from Asterra provides a presentation of the technology and their proposal.

Utilities Manager Green states that he is interested in the two-year plan offered by Asterra.

##### *Public Comment*

Mr. Jeff Wilson (remote) asks if the technology can be deployed in drones or helicopters instead of satellites? Mr. Rodriguez states that Asterra has tried this, but it is not cost effective. Mr. Wilson asks if there are alternative providers of this service such as Siemens. Utilities Manager Green says the District has not looked into other providers, but if the committee has interest staff can look into other providers.

Utilities Manager Green points out this technology will help the most with smaller service lines. The District does not have many main breaks. But the District does have smaller service line leaks that could be investigated.

Staff will look at other vendors and review possible costs and plans. If there are more than two vendors, the District will issue an RFP.

#### 4.B **Receive Information Regarding an Incentive Opportunity for the Purchase of an EV Tractor, Discuss and Consider a Recommendation to the CCSD Board of Directors for a Budget Adjustment for the Purchase of the EV Tractor (Time: 3:37)**

Utilities Manager Green presents the background of the need for a new backhoe. He points out it is expensive but there are vouchers available that would reduce the cost to below a standard diesel backhoe.

Committee member Siebuhr asks if the District has considered a used tractor. Utilities Manager Green says the cost is not worth it.

Committee member Dudzik asks about what staff see as downsides to the electric tractor. Utilities Manager Green says the big concern is uncertainty about the electric tractor's operational longevity.

Staff will look further into whether the electric tractors can be rented and tested, or if there are other good deals or funding on used tractors.

Committee member Siebuhr points out that the reliability in storms may be limited if power goes out and the tractor cannot be recharged. Utilities Manager Green thinks the District could charge the tractor with the District generators.

#### **4.C Receive a Presentation from R&I Committee Member Dudzik on a Proposed “Cambria Flood Risk Mitigation and Management Plan” (Time: 3:22)**

Committee member Dudzik presents the outline of the Cambria Flood Risk Mitigation and Management plan.

Committee member Webb asks about the role of the diversion channel and pump at the West end of town. Program Manager Reaper points out that the gravity drain pipes have flap gates that shut when Santa Rosa Creek floods, forcing the gravity drains to back up.

General Manager McElhenie states that flooding is a significant problem, but is somewhat outside the District's jurisdiction. Furthermore, the District does not have the capacity to lead something like this. The District would like SLO county to take the lead, and the District is planning to bring this issue up with the County at the upcoming Water Resources Advisory Committee meeting.

Chairperson Dean proposes General Manager McElhenie and Utilities Manager Green continue meeting with the County Flood Control District and keep the R&I committee updated.

#### **5. FUTURE AGENDA ITEM(S) (Time: 3:52)**

Chairperson Dean asked for any future agenda items. Items include:

- SST update
- SR4 Tank repair cost and scope
- Wastewater EV charging station update
- Items for future meetings include
  - Update on the Ditch Witch vacuum trailer,
  - The FLO brand meters from Moen are similar to FLUME meters, but shut off your water line if it detects a leak The District may buy some and sell to residents at a discounted rate.
- Program Manager Reaper states that the District must update the UWMP and the Water Storage Contingency Plan. These are due in July 2026. The District will need to get a consultant soon.
- The District is looking into an offset study similar to Los Osos' and revamping the water conservation plan
- The committee will receive an update on any meetings with County Flood Control District regarding flood management

- The District would like to update it's hydraulic model and water master plan. This will come to the Committee in January or February.

**6. ADJOURN**

Chairperson Dean adjourned the meeting at 4:00 p.m.

DRAFT

CAMBRIA COMMUNITY SERVICES DISTRICT

TO: Resources and Infrastructure Committee

AGENDA NO. 4.A.

FROM: James Green, Utilities Department Manager  
Cody Meeks, Water Systems Superintendent

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Meeting Date: January 13, 2025

Subject: Discussion and Consideration for a Contract with ASTERRA Satellite Leak Protection Services for Water and Wastewater Departments and Consider Forwarding a Recommendation to the CCSD Board of Directors

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**RECOMMENDATIONS:**

It is recommended that the Resources & Infrastructure Committee forward a recommendation to the Board of Directors regarding the satellite-based leak detection service provided by ASTERRA.

**FISCAL IMPACT:**

The “Prevent” Package cost for two years of service is \$101,000.

The budget for Water distribution system maintenance is currently \$120,000. This category (11-060310D-11) comprises emergency repair, scheduled maintenance, and leak detection services. A budget adjustment would be necessary to meet all obligations.

**DISCUSSION:**

In November, utility staff, in collaboration with ASTERRA, presented a leak detection evaluation via satellite to the R&I advisory committee. The presentation was well received, and the committee agreed that the service would be useful. The committee also agreed that staff should explore additional vendors who perform this service for proposals.

Staff contacted Suez Utility and Siemens to inquire about their satellite leak detection programs. Suez declined, and Siemens failed to respond to four separate requests.

Staff are recommended to contract services with ASTERRA for a subscription-based package. The recommended package would encompass two years of leak-detection services covering baseline leak analysis, precision locating, temporal and spatial analysis, and prioritizing leak locations for field investigation. Additionally, with this package, ASTERRA will subcontract acoustic leak detection for a 40-hour period once a year.

Attachments: ASTERRA Quote  
ASTERRA Wastewater Solution Overview  
ASTERRA Water Solution Overview



A proposal for  
**Cambria Community  
Services District, CA**



CAMBRIA COMMUNITY  
SERVICES DISTRICT

Proposal & Scope of Work

Prepared by Matias Rodriguez, Sales Development Representative

9 October 2024

# ASTERRA

ASTERRA uses patent-protected technology for infrastructure condition assessment, pipe replacement modeling, and leak detection in urban and rural, water or sewage networks, using L-band synthetic aperture radar (SAR) mounted on a satellite. The technology is based on a proprietary algorithm that detects soil moisture resulting from treated water or wastewater leaks, through the analysis of SAR data. This is of considerable value to industry, governments, and citizens. Because the observation point is orbiting 390 miles above the Earth, this allows for simultaneous monitoring of pipes within a large network.

## ASTERRA's Martian Roots

ASTERRA's core technology is based on the search for underground water on Mars and other planets. Lauren Guy, a geophysicist, and entrepreneur who developed the approach, quickly recognized the application could be even more effective here on Earth. The water was closer, the need more immediate, and the technology had the potential to solve a number of critical problems. Mr. Guy founded Utilis (now known as ASTERRA) in 2013 to develop applications for the new technology. In 2016, leak detection in underground water systems became the first commercially used application. This solution is now called Recover.

## A Revolutionary Change

From an orbiting satellite, our algorithm which is fine-tuned to detect treated drinking water and wastewater, reveals underground leaks as small as 0.2 gallons per minute. Now, managers of underground water infrastructure can see the water leaking from their systems. Even in the largest cities, it could be seen all at once, with unheard-of speed and efficiency. ASTERRA continues to refine the technology and expand its applications beyond leak detection, adding pipeline monitoring and deficiency analysis as well as property assessment to its growing capabilities.

## Impact

ASTERRA actively contributes to the United Nations Sustainable Development Goals, particularly focusing on Goal numbers 6 (Clean Water and Sanitation), 9 (Industry, Innovation, and Infrastructure), and 13 (Climate Action). By leveraging our expertise in satellite-based infrastructure intelligence, we empower organizations to make data-driven decisions and build a resilient and sustainable future. We are dedicated to creating lasting positive change and supporting the achievement of the SDGs globally.



### 1. Satellite Radar – Scan Acquisition

Raw scans of the area taken by radar over Areas of Interest (AOI) received from client

### 2. Radiometric Corrections

ASTERRA takes the raw scan and prepares it for analysis, by filtering interferences from buildings, manmade objects, vegetation, water bodies, and more

### 3. Algorithmic Analysis

ASTERRA's unique and patented algorithm targets the spectral signature of treated water or wastewater and its interaction with the soil

### 4. Availability to Client

Newly detected leak locations are delivered via the EO Discover platform to the client on an ongoing basis, with frequency depending on the level of monitoring purchased.

## Advantages of Ongoing Monitoring

Today, utilities typically survey their system blindly and reactively. This approach yields minimal results which leads many utilities to deprioritize proactive leak detection. Usually, utilities are forced to use limited resources for work orders to find, dig and repair leaks. In most cases, this results in falling further behind the curve and increased pipe breakages. Rather than leak detectors surveying the entire system blindly, Recover guides leak detectors to likely leak locations or points of interest which ASTERRA has highlighted through their analysis. Now, leak detectors only need to walk 5-10% of the system where water is already leaking. With a single scan, ASTERRA identifies ~30% of the active leaks in your system. Additional scans allow for ongoing monitoring which will result in more active leaks being identified in your system. Additionally, leaks are continuously arising and enlarging, thus ongoing monitoring will continue to detect more leaks even in areas previously inspected.

## Client Benefits & Impact

ASTERRA provides a comprehensive, accurate, and non-invasive remote sensing solution for locating leaks and monitoring any potable water and wastewater system in the world. This works over any type of terrain – flat or hilly; sparsely populated or densely populated high-rises. This is done by extracting information from SAR scans taken high above the ground and converting them into locations of underground potable water or wastewater leaks. Reducing NRW additionally has a positive effect on the environment. By reducing non-revenue water loss, the amount of processing decreases, resulting in a reduction of power use and the associated environmental effects. Locating and fixing wastewater leaks in sewer systems also helps the environment by preventing pollution.

### Main benefits of Recover:

- Non-invasive technology: Deployment of sensors or hardware on the ground is not necessary.
- ASTERRA technology is effective irrespective of soil type, pipe material, and pipe diameter.
- Covers large areas at once. Surveys an entire system in urban and rural areas, while also providing location intelligence at a fine resolution. Identifies potential leaks in areas that traditional acoustic leak detection programs may not typically survey.
- Find more leaks in a shorter period: Increases the efficiency of traditional acoustic leak detection programs by prioritizing work locations and offering quicker response times.
- Screening technology that can be used directly or indirectly for condition assessment, asset budget planning and work on structural changes prioritizing network riskier zones.
- Identifies background (i.e., non-surfacing) leaks that might otherwise go undetected for long periods of time.
- Can fit into either CAPEX or OPEX budgets.
- Provides a positive impact on the environment (reduces water loss, electricity used, and CO2 produced).

## ASTERRA's Solutions

ASTERRA's solutions include Recover and MasterPlan for potable water and wastewater. All are made available on ASTERRA's EO Discover platform. Recover and MasterPlan are ASTERRA's commercial services offered in this proposal. The output from the proprietary algorithm is provided through the analysis of the SAR data combined with other processing techniques owned by Utilis (dba ASTERRA).

### Recover for Leak Detection

Recover, the recipient of the AWWA Innovation Award in 2021, is a satellite-based solution for monitoring and detecting leaks in drinking and wastewater systems. It enhances operational efficiency and budget optimization by providing infrastructure intelligence for proactive pipe repair and planning. With Recover, entire city-wide systems can be monitored efficiently.

This advanced technology quickly locates non-surfacing leaks, allowing leak detection crews to focus on targeted repairs instead of unnecessary digging. Compared to traditional methods, Recover identifies more leaks and increases field crew efficiency by up to 400%. It offers the water industry the lowest cost per leak found, averaging 3.5 leaks per crew day compared to 1.3 with traditional acoustic methods. By reducing non-revenue water loss, which amounts to 17 billion gallons annually worldwide, Recover brings significant benefits to companies in the industry.

Furthermore, Recover assists the wastewater sector by mitigating the risks of fines, consent decrees, legal consequences, and reputational damage.

## Recover Insights

At the start of the client's subscription period, each client is provided access to the EO Discover platform where they can access the data in the form of GIS files, the U-View application, or the dashboard with individual projects and field performance metrics. Each client is also provided access to the U-Collect field investigation application. The platform can be accessed 24/7 during the subscription period to view ASTERRA's analysis and results of field investigations track success metrics. Recover's specific features include:

**Recover (POI Output):** A GIS layer containing the POIs, provided in SHP and KML format for import into any GIS system (client-based, ESRI, or ASTERRA-provided U-Collect and U-View) that can be overlaid on a map displaying streets, pipes, hydrants, valves, and potential leak information.

**EO Discover:** A link to the EO Discover password-protected platform displaying data and field results, along with monitoring the progress of the project/service progress in real-time.

**Temporal and Spatial Analysis:** With a single scan, Recover identifies ~30% of the leaks in a given system. With multiple scans, Recover will identify up to 25% more of the leaks in the given system. Through multiple scans we can identify leak clusters through a temporal and spatial analysis which will aid in maintenance prioritization and asset management plans.

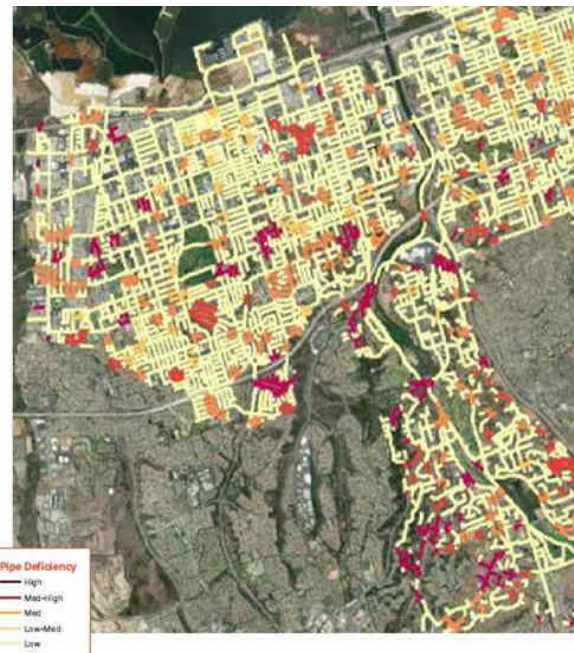
## MasterPlan for Pipe Deficiency Assessment

Providing unique insights not available from anyone but ASTERRA, MasterPlan is an actual (not predictive) measurement of non-surfacing pipe leaks. It is pipe agnostic and collected non-invasively by a satellite with wide coverage, often scanning a full system instantaneously. MasterPlan provides actionable insights into your asset management plan in one easy data layer. Trained on five years of leaks discovered using Recover, the new algorithm assesses the deficiency of an entire pipe system using multiple SAR scans over time.

ASTERRA MasterPlan provides a GIS dataset containing pipe deficiency levels derived from SAR data. This solution is based on the same proven patented algorithm that is used by Recover to detect leaks in your system but is extended to monitor your system over time using statistical analysis. The general process takes all POIs identified in two consecutive satellite scans (identical coverage and angle) over your area of interest and analyzes the POI results. It then compares the POIs from multiple scans and identifies the clusters of POIs between them.

These results are processed through a learned statistical algorithm and used to assign pipes a score from low to high, signifying the level of deficiency observed.

With ASTERRA Masterplan, we can identify critical areas where the client can focus its future pipeline rehab and replacement efforts. These high deficiency areas can be used for asset management planning purposes, e.g., capital improvement replacement planning.



## MasterPlan Insights

MasterPlan provides utilities and engineers with insights into actual pipe conditions. This GIS data layer is compatible and easily integrates into all GIS and GIS-based software. Combine this data with other information, such as pipe age, material, work orders, and consequence of failure to further enhance your replacement planning models or water system master plans.

**MasterPlan (Pipe Deficiency Output):** A GIS layer containing client pipe segments rated based on condition. Provided in SHP and KML format for import into a GIS or risk modeling system (Client map displaying streets, pipes, hydrants, valves, and potential leak information).

**EO Discover:** Login credentials to the EO Discover's password-protected platform for viewing the pipe data via GIS or U-View applications and for monitoring pipe deficiency levels.

**MasterPlan Pipe Deficiency Assessment:** A summary assessment detailing the condition of the client's pipes based on the GIS data output of pipe scores from low to high deficiency.

**U-View Licenses:** Licenses are provided for U-View (allows the client to view the data) for the duration of the EO Discover subscription period.

## Typical Process and Timeline

- After confirmation of the order through the contract signature or receipt of a purchase order, ASTERRA will acquire the satellite scan(s). ASTERRA must have the order confirmation at least 21 days prior to the first date of satellite coverage to move forward with the satellite data procurement. The date of the acquisition is subject to the technical and operational constraints of the third-party satellite operation company and may change at any time.
- Before the acquisition, the client will provide ASTERRA with an Area of Interest (AOI). Unless agreed otherwise by the parties, the AOI is a designated geographical area to be surveyed using satellite within the client-provided service area.
- During the period prior to the scan acquisition, the client will provide ASTERRA with a GIS layer of all available treated water or sewage lines in the AOI to be analyzed. If available, the client will also provide a hydrant and valve layer within the AOI.
- Unless otherwise agreed upon by both the parties, ASTERRA will provide services only in the AOI overlapping with the client's provided GIS pipe system layer.
- After acquiring the scan and receiving the GIS pipe layers from the client, data will begin to populate on the EO Discover platform. This is approximately 7-14 business days after the first scheduled scan acquisition date. Scan acquisition dates may be changed by a third party (satellite operator) or due to technical constraints. Service start dates may be affected due to poor scan quality according to ASTERRA's quality assurance standards.
- Where applicable, leak field inspection work can begin after the leakage data has populated on EO Discover on an agreeable date between both parties.



# PROPOSAL

## Scope of Work

The scope of work contained herein details the work and services ASTERRA will provide as well as the roles and responsibilities of both ASTERRA and Cambria Community Services District, CA (“Client”).

## Roles, Responsibilities, and Offerings – ASTERRA

ASTERRA will provide Recover data as a service via EO Discover and it will consist of areas identified as potential leaks (i.e., areas containing soil moisture of treated water and/or wastewater underground) using a proprietary satellite imaging algorithm across the Client’s water system. ASTERRA will provide a primary contact person for technical and administrative purposes who will interact with the Client.

## ASTERRA’s Responsibilities (“Services”):

- Acquiring and analyzing the satellite scan(s).
- Providing potential leak location data as a service through our password-protected platform, EO Discover. This data can be exported as GIS data files.
- Providing best practices for field inspection protocols to the Client.

## ASTERRA’s Solution for Potable Water:

- **Recover (POI Output):** GIS layer containing the POIs, provided in GIS data files formatted for import into any GIS system.
- **EO Discover:** Provides access to monitor and track the progress of the project/service in real time and calculates ROI and impact metrics for ongoing KPI tracking. The license is for the period of service purchased.
- **U-Collect and U-View Licenses:** Provided for each of the following: U-Collect (allows field technician to collect data in the field), and U-View (allows field technician to view data from anywhere). The license is active upon delivery for the period of service. Additional licenses may be purchased and/or the initial license extended at the request of the client.



- **Kick-off Meeting:** Prior to fieldwork, an ASTERRA or ASTERRA-certified team (regardless of if it the client's team or a contractor), will call a kick-off meeting to agree on the operational field plan to address the Client's specific needs and the best practices required to get the best results.
- **Optional: Acoustic Leak Detection for Field Investigation (for Potable Water Pipelines Only):** Based upon selecting this option, ASTERRA will provide a certified subcontracted acoustic leak detection team to investigate the points of interest, provide a list of verified leaks, and mark them for repair. The leak detection field verification team(s) is proficient and experienced in using and operating acoustic equipment. The team should be provided with all the needed tools to access the listening points.
- **Optional: ASTERRA MasterPlan Pipe Deficiency Map,** provided as a GIS data set, if purchased within the Recover tier available or as an additional service option.
- **Optional: ESRI Arc GIS Field Maps Integration –** data provided in your ESRI ArcGIS online accounts for easy use in ArcGIS Field Maps. (Additional cost may apply if it is not included in the Recover service tier already).

## ASTERRA's Solution for Wastewater

- **Recover (POI Output):** GIS layer containing the POIs, provided in GIS data files formatted for import into any GIS system.
- **EO Discover:** Provides access to monitor and track the progress of the project/service in real time and calculates ROI and impact metrics for ongoing KPI tracking. The license is for the period of service purchased.
- **Kick-off Meeting:** ASTERRA or ASTERRA-certified team will call a virtual kick-off meeting to discuss the data delivered and demonstrate the usage of the platform.

## Roles, Responsibilities, and Offering – Client

The Client is responsible for providing baseline system data, work order history, and in some cases, an acoustic field verification team to inspect POIs identified by ASTERRA. The client shall identify a primary contact person for technical, administrative, and field inspection coordination. ASTERRA agrees to use the information described below only for the client's specific project and to not share the information with any other third party.

### Client Responsibilities

- **Pipe System Information for Potable Water Lines:** Prior to scan acquisition, the **Client** shall provide ASTERRA with a detailed and accurate GIS pipe system layer. If GIS is not available, roads will be used to guide the analysis. ASTERRA will use this layer to identify POIs. The GIS layer should include pipe material and diameter, length of pipeline to be analyzed, hydrants, valves, and any other detailed information available.
- **Pipe System Information for Wastewater Lines:** Prior to scan acquisition, the **Client** shall provide ASTERRA with a detailed and accurate GIS pipe system layer. If GIS is not available, roads will be used to guide the analysis. ASTERRA will use this layer to identify POI locations. The GIS layer should include pipe material and diameter, forced and/or gravity lines, length of pipeline to be analyzed, manholes, depth, and any other detailed information available.
- **Leak Detection History (Work Orders):** The **Client** shall provide ASTERRA with a detailed and accurate history of leak findings and repairs beginning one (1) week before the date the first satellite scan is acquired and through the project life cycle.
- **Leak Detection Performance Metrics for Potable Water Lines:** The **Client** shall provide ASTERRA with relevant and available performance metric data related to previous **Client**-utilized leak detection methodologies. This information will be used to calculate value metrics of the service and will be provided to the Client in the final report for their use.

## Client Services for Potable Water

### Areas of Interest (AOI)

During this service, ASTERRA will survey the Area of Interest (AOI) to be determined by the client, contained to 66 miles of mains and service pipes as outlined in the image below:






Once ASTERRA receives the full GIS pipe system information from the client, the pipe and total miles analyzed per delivery will be identified. Note: both main and service lines will be counted for total pipe length calculation.



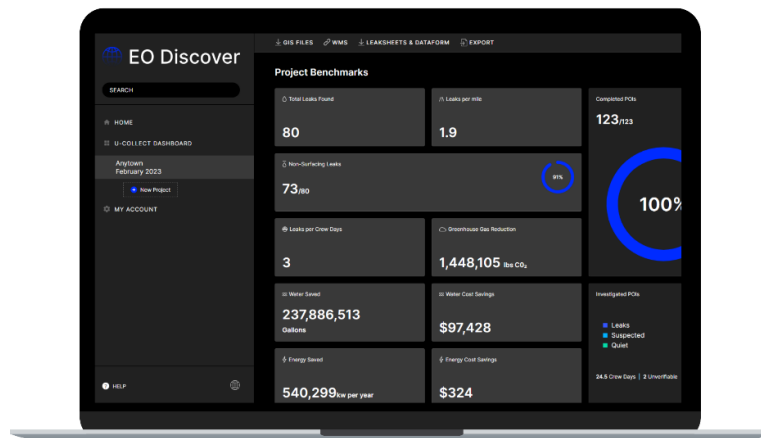
# EO Discover

## Subscription-Based Service Packages

ASTERRA's Recover solution and features are provided via a subscription to EO Discover with an option to select one of three district levels of service (Detect, Prevent or Advise). Each service level contains specific features designed to meet clients' current and future needs, with additional add-on services available.

Detect 	Prevent 	Advise 
<b>2 licenses:</b> EO discover	<b>4 licenses:</b> EO discover	<b>6 licenses:</b> EO discover
Base line leak analysis	Base line leak analysis	Base line leak analysis
Leak Locations	Leak Locations	Leak Locations
U-collect/U-View Apps (2 licenses)	U-collect/U-View Apps (4 licenses)	U-collect/U-View Apps (6 licenses)
	Temporal and Spatial leak Analysis	<b>Enhanced</b> Temporal and Spatial leak Analysis
	Prioritized Leak locations for field investigation	Prioritized Leak locations for field investigation
		MasterPlan Pipe Deficiency Map
		ESRI ArcGIS Field Maps Compatibility
		Personal Success Manager

Always Included: Online support, customized success plan, best practices tutorials



## Pricing

Area of interest (AOI) for analysis:

Potable Water lines: 66 miles

### Option A: 1 year

	Prevent		Advise	
	QTY	Price	QTY	Price
Package	12 months	\$36,000	12 months	\$72,000
Subcontracted Acoustic Leak Detection Technician - BOTG (40 hours/ 5 Days)	5 Days	\$10,500	10 Days	\$21,000
<b>Total</b>		<b>\$46,500</b>		<b>\$93,000</b>

### Option B: 2 years

	Detect		Prevent		Advise	
	QTY	Price	QTY	Price	QTY	Price
Package	24 months	\$46,000	24 months	\$71,000	24 months	\$142,000
Subcontracted Acoustic Leak Detection Technician - BOTG (40 hours/ 5 Days)	10 Days	\$21,000	15 Days	\$30,000	20 days	\$40,000
<b>Total</b>		<b>\$67,000</b>		<b>\$101,000</b>		<b>\$182,000</b>
Price Per Year		\$33,500		\$50,500		\$91,000

### Option C: 3 years

	Detect		Prevent		Advise	
	QTY	Price	QTY	Price	QTY	Price
Package	36 months	\$60,000	36 months	\$104,000	36 months	\$213,000
Subcontracted Acoustic Leak Detection Technician - BOTG (40 hours/ 5 Days)	15 days	\$30,000	20 Days	\$40,000	25 days	\$50,000
<b>Total</b>		<b>\$90,000</b>		<b>\$144,000</b>		<b>\$263,000</b>
Price Per Year		\$30,000		\$48,000		\$87,666

Proposal is valid until: December 2<sup>nd</sup>, 2024

Note: Once a package is selected, please contact ASTERRA sales team for terms of use and signature processing.



# Recover: Wastewater

Leak Survey

## Solution Overview

The ASTERRA method uses satellite imagery to cover large areas and quickly narrow down the regions that contain probable leaks. How do we do this?

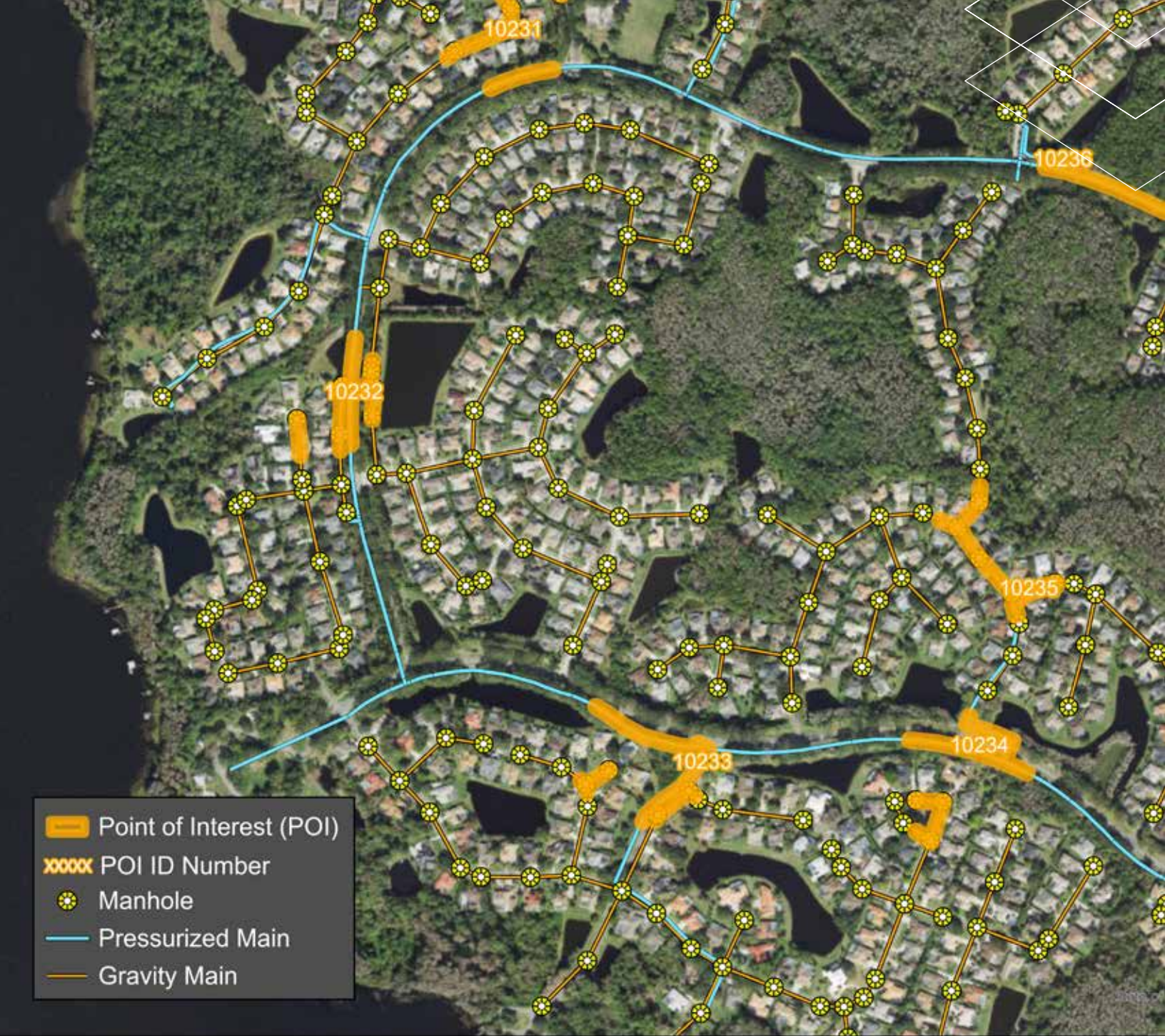
Specifically, L-band synthetic aperture radar (SAR) sensors are used for their day/night, cloudy/clear capabilities along with the ability to penetrate beneath the surface of the ground. Using a patented algorithm, ASTERRA can filter out the signature of wastewater and provide ongoing monitoring to the

customer. Through a subscription, they are then provided to direct the utility's preferred field crew to search within the zones in order to pinpoint the exact leak locations.

This technology has been adapted from the search for water on other planets, underscoring its innovative and outstanding capability here on Earth. ASTERRA offers a fresh approach and a non-invasive method to the problem of urban water leakage.

## Key Benefits

- 1 **Prevent pollution of sensitive habitats and neighborhoods**
- 2 **Most cost-effective tool to support regulatory compliance**
- 3 **Identify trouble spots for pipe replacement strategy**



## About ASTERRA

ASTERRA (formerly Utilis) provides underground soil moisture data on pipes, roads, rails, dams, and mines to water utilities, government agencies, and infrastructure managers. Using SAR (synthetic aperture radar) data from satellites and a series of proprietary algorithms, ASTERRA turns the data into actionable intelligence that supports large-scale decisions and Earth's resource resilience. Since 2017, in 64 countries, ASTERRA technology has saved over 315,288 million gallons of water, 788,219 MWH of energy, and 201,784 metric tons of carbon. ASTERRA is headquartered in Israel with offices in the U.S., the U.K., and Japan.



# Recover: Water

Leak Detection and Analysis

## Solution Overview

ASTERRA Recover uses satellite imagery and the power of AI to cover large areas and monitor the regions that contain probable leaks. How do we do this?

Specifically, L-band synthetic aperture radar (SAR) sensors are used for their day/night, cloudy/clear capabilities along with the ability to penetrate beneath the surface of the ground. Using a patented algorithm and machine learning, Recover filters out the signature of drinking water for the customer. This service provides locations directly to the utility's preferred field crew to search and pinpoint the exact leak location.

This technology (winner of the 2021 AWWA Innovation Award) has been adapted from the search for water on other planets, underscoring its innovative and outstanding capability here on Earth. Recover offers a fresh approach and non-invasive method to the problem of urban water leakage. When compared with other methodologies, continuous monitoring with satellite leak detection saves you time, water, money, and energy.

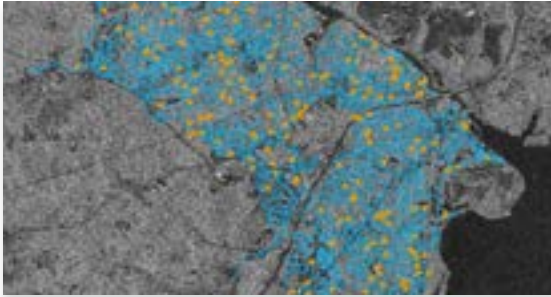
## Key Benefits

- 1 **Reduce your non-revenue water**
- 2 **Maximize leaks found while increasing field crew efficiency 400%**
- 3 **Most cost-effective tool to support regulatory compliance**
- 4 **Lowest cost solution on the market**



## Image to Repair: 3 Easy Steps

### 1 Monitoring and analysis



### 2 Delivery via subscription on the EO Discover platform



### 3 Pinpoint leak to mark for excavation



## About ASTERRA

ASTERRA (formerly Utilis) provides underground soil moisture data on pipes, roads, rails, dams, and mines to water utilities, government agencies, and infrastructure managers. Using SAR (synthetic aperture radar) data from satellites and a series of proprietary algorithms, ASTERRA turns the data into actionable intelligence that supports large-scale decisions and Earth's resource resilience. Since 2017, in 64 countries, ASTERRA technology has saved over 368 billion gallons of water, 920,000 MWH of energy, and 235,252 metric tons of carbon. ASTERRA is headquartered in Israel with offices in the U.S., the U.K., and Japan.

## Recover by the Numbers

# 64

countries have found success using this solution

# 235K

metric ton reduction in CO<sub>2</sub> emissions

# 920K

MWH of energy saved

# 100K

leaks verified worldwide

# 368B

gallons (1.67B m<sup>3</sup>) of water saved

# 3.5

leaks found per crew day vs 1.3 average with traditional acoustic methods

CAMBRIA COMMUNITY SERVICES DISTRICT

TO: Resources and Infrastructure Committee

FROM: James Green, Utilities Department Manager  
Tristan Reaper, Program Manager

AGENDA NO. **4.B.**

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Meeting Date: January 13, 2025

Subject: Receive and Discuss Information  
Regarding a Proposed Instream Flow Study  
for Santa Rosa Creek

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**RECOMMENDATIONS:**

It is recommended that the Resources & Infrastructure Committee receive and discuss information regarding a proposed Instream Flow Study for Santa Rosa Creek.

**FISCAL IMPACT:**

The preliminary cost estimate is \$150,000.00. This is based on the total cost of performing the San Simeon Creek Instream Flow Study, which began in 2021 and concluded in August 2024.

**DISCUSSION:**

The Instream Flow Study assesses the stream, stream flows, and associated aquatic habitat in the lower reach of Santa Rosa Creek to assess the impacts of municipal water diversions.

Stillwater previously performed stream flow analysis for Santa Rosa Creek as part of a county-wide evaluation conducted in 2014. The aim of the Environmental Water Demand (EWD) study was to provide a preliminary estimate of the magnitude and timing of instream flows necessary to support steelhead populations in the creeks of San Luis Obispo County. As mentioned by the CCSD in the rebuttal to the Notice of Violation, there were issues with the methodology of the EWD, the most notable of which was the application of methodology that was developed in the Pacific Northwest, where rivers and creeks flow all year long, to the rivers and creeks of the central coast of California which tend to be more intermittent. One of the aims of this study would be to apply a methodology for EWD appropriate for the intermittent nature of Santa Rosa Creek.

Instream flows provide many functions throughout the year, including sufficient flow for fish migration and rearing, suitable water quality in Santa Rosa Creek, and essential geomorphic processes. The central focus of this study is to evaluate a range of flows and assess their ability to protect basic ecological processes that occur throughout the year but are most limiting when flows are at their lowest (dry season; late spring through fall).

The report would focus on surface flows and identify flows needed for sensitive species and habitats in the lower reach of Santa Rosa Creek. The study objective is to determine the relationship between habitat and streamflow as it relates to the needs of aquatic species in the lower reaches of Santa Rosa Creek with the operation of the Santa Rosa groundwater wells.

The revised study will provide precise and timely data, ensuring a thorough evaluation of the current streamflow conditions in relation to climate changes.